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SESSIONAL PAPERS

VOLUME 8

SECOND SESSION OF THE ELEVENTH PARLIAMENT

OF THE

DOMINION OF CANADA

SESSION 1910

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CONTENTS OF VOLUME 1.

(This volume is bound in two parts.)

1. Report of the Auditor General for the year ended 31st March, 1909. Volume I, Parts A, C to J (inclusive) L, M, N. Volume III, Parts V, W, X, Y. Presented 12th November, 1909, by Hon. W. S. Fielding. Volume II, Parts B, K and O to U, (inclusive), presented 12th January, 1910, by Hon. W. S. Fielding.

Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 2.

2. Public Accounts of Canada, for the fiscal year ended 31st March, 1909. Presented 12th November, 1909, by Hon. W. S. Fielding

Printed for both distribution and sessional papers.

3. Estimates of the sums required for the services of Canada for the year ending on the 31st March, 1911. Presented 18th November, 1909, by Hon. W. S. Fielding.

Printed for both distribution and sessional papers.

4. Supplementary Estimates of sums required for the service of Canada, for the fiscal year ending 31st March, 1910. Presented 24th November, 1909, by Hon. W. S. Fielding.

Printed for both distribution and sessional papers.

5. Further Supplementary Estimates of sums required for the service of Canada, for the fiscal year ending 31st March, 1910. Presented 14th March, 1910, by Hon W. S. Fielding.

Printed for both distribution and sessional papers.

5*a*. Supplementary Estimates of sums required for the service of Canada for the fiscal year ending 31st March, 1911. Presented 3rd February, 1910, by Hon. W. S. Fielding.

Printed for both distribution and sessional papers.

5*b*. Further Supplementary Estimates of the sums required for the service of Canada, for the fiscal year ending 31st March, 1911. Presented 30th April, 1910, by Hon. W. S. Fielding.

Printed for both distribution and sessional papers.

5*c*. Further Supplementary Estimates of the sums required for the service of Canada, for the fiscal year ending 31st March, 1910. Presented 20th April, 1910, by Hon. W. S. Fielding.

Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 2—*Continued.*

6. List of Shareholders in the Chartered Banks of Canada, as on the 31st December, 1909. Presented 21st March, 1910, by Sir Wilfrid Laurier.

Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 3.

7. Report of dividends remaining unpaid, unclaimed balances and unpaid drafts and bills of exchange in Chartered Banks of Canada, for five years and upwards, prior to 31st December, 1909.

Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 4.

8. Report of the Superintendent of Insurance for the year ended 31st December, 1909.

Printed for both distribution and sessional papers.

9. Abstract of Statements of Insurance Companies in Canada, for the year ended 31st December, 1909.

Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 5.

10. Report of the Department of Trade and Commerce, for the fiscal year ended 31st March, 1909. Part I.—Canadian Trade. Presented 12th November, 1909, by Hon. W. S. Fielding.. .. ..*Printed for both distribution and sessional papers.*

10*a*. Report of the Department of Trade and Commerce. Part II.—Canadian Trade with France, Germany, United Kingdom and United States. Presented 12th November, 1909, by Hon. W. S. Fielding.. .. .. ..*Printed for both distribution and sessional papers.*

10*b*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1909. Part III.—Canadian Trade with foreign countries except France, Germany, United Kingdom and United States. Presented 29th November, 1909, by Sir Wilfrid Laurier.. .. ..*Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 6.

10*c*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1909. Part IV.—Canadian Trade: Miscellaneous. Presented 12th November, 1909, by Hon. W. S. Fielding.. .. ..*Printed for both distribution and sessional papers.*

10*d*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1909. Part V.—Grain Statistics, including the crop year ended 31st August, 1909, and season of navigation ended 10th December, 1909. Presented 18th March, 1910, by Hon. W. S. Fielding.. .. .., ...*Printed for both distribution and sessional papers.*

10*e*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1909. Part VI.—Subsidized Steamship Services, with statistics showing steamship traffic to 31st December, 1909, and estimates for fiscal year 1910-1911. Presented 3rd May, 1910, by Sir Wilfrid Laurier..*Printed for both distribution and sessional papers.*

10*f*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1909. Part VII.—Trade of Foreign Countries and Treaties and Conventions. Presented 25th April, 1910, by Sir Wilfrid Laurier.

Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 6—*Continued.*

10*g*. Certified copy of a Report of the Committee of the Privy Council, approved by His Excellency the Governor General on the 14th February, 1910, in respect to trade relations with Germany. Presented 15th February, 1910, by Hon. W. S. Fielding.
Printed for sessional papers.

10*h*. Trade relations with Germaney.—No. 2. Presented 2nd March, 1910, by Hon. W. S. Fielding.. .. .. .

CONTENTS OF VOLUME 10.

19. Report of the Minister of Public Works, for the fiscal year ended 31st March, 1909. Presented 12th November, 1909, by Hon. W. Pugsley.
Printed for both distribution and sessional papers.

19*a*. (No issue.)

19*b*. (No issue.)

19*c*. Supplementary Report of the International Waterways Commission, 1909. Presented 19th November, 1909, by Hon. W. Pugsley.
Printed for both distribution and sessional papers.

19*d*. Report of the International Waterways Commission on proposed dam and regulation work at foot of Lake Erie, and appendices accompanying said report. Presented 17th February, 1910, by Hon. W. Pugsley.. .. ..*Not printed.*

19*e*. Additional correspondence, International Waterways Treaty, and Report on division of Waters of St. Mary and Milk River. Presented 4th April, 1910, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers.

20. Report of the Department of Railways and Canals, for the fiscal year ended 31st March, 1909. Presented 12th November, 1909, by Hon. G. P. Graham.
Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 11.

20*a*. Canal Statistics for the season of navigation, 1909. Presented 21st March, 1910, by Hon. G. P. Graham.. .. ..*Printed for both distribution and sessional papers.*

20*b*. Railway Statistics of Canada, for the year ended 30th June, 1909. Presented 12th January, 1010, by Hon. G. P. Graham.
Printed for both distribution and sessional papers.

20*c*. Fourth Report of the Board of Railway Commissioners for Canada, to 31st March, 1908, for the year ending 31st March, 1909. Presented 12th November, 1909, by Hon. G. P. Graham.. .. ..*Printed for both distribution and sessional papers.*

20*d*. Report of the Hudson Bay Railway Surveys. Presented 13th December, 1909, by Hon. G. P. Graham.. .. ..*Printed for both distribution and sessional papers.*

21. Report of the Department of Marine and Fisheries (Marine) for 1908. Presented 15th November, 1909, by Hon. L. P. Brodeur.
Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 12.

21*a*. Eighth Report of the Geographic Board of Canada, containing all decisions to June 30, 1909. Presented 25th November, 1909, by Hon. L. P. Brodeur.
Printed for both distribution and sessional papers.

21*b*. List of Shipping issued by the Department of Marine and Fisheries, being a list of vessels on the registry books of Canada on the 31st December, 1909.
Printed for both distribution and sessional papers.

22. Report of the Department of Marine and Fisheries (Fisheries) for 1909. Presented 12th November, 1909, by Hon. S. A. Fisher.
Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 13.

22a. Lobster Fishery. Evidence taken before Commander William Wakeham, M.D., (Officer in charge of the Gulf Fisheries Division) in Quebec and the Maritime Provinces. Two volumes. Presented 11th March, 1910, by Hon. W. Templeman. Also copy of the Report of Commander Wakeham in relation thereto.
Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 14.

23. Report of the Harbour Commissioners, &c., to 31st December, 1908. Presented 13th January, 1910, by Hon. R. Lemieux..*Printed for both distribution and sessional papers.*

23a. Report of the Chairman of the Board of Steamboat Inspection, for the fiscal year ended 31st March, 1909. Presented 12th November, 1909, by Hon. S. A. Fisher.
Printed for both distribution and sessional papers.

24. Report of the Postmaster General, for the fiscal year ended 31st March, 1909. Presented 12th November, 1909, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers.

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25. Report of the Department of the Interior, for the fiscal year ended 31st March, 1909. Presented 12th November, 1909, by Hon. F. Oliver.
Printed for both distribution and sessional papers.

25a. Report of the Chief Astronomer.
Printed for both distribution and sessional papers.

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25b. Annual Report of the Topographical Surveys Branch.
Printed for both distribution and sessional papers.

25c. Report of the High Commissioner for Canada, for the year ended 31st March, 1909. Presented 12th November, 1909, by Hon. F. Oliver.
Printed for both distribution and sessional papers.

26. Summary Report of the Geological Survey Branch of the Department of Mines, for the calendar year 1909.
Printed for both distribution and sessional papers.

26a. Summary Report of the Mines Branch of the Department of Mines.
Printed for both distribution and sessional papers.

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27. Report of the Department of Indian Affairs, for the fiscal year ended 31st March, 1909. Presented 12th November, 1909, by Hon. F. Oliver.
Printed for both distribution and sessional papers.

28. Report of the Royal Northwest Mounted Police, 1909. Presented 12th January, 1910, by Sir Wilfrid Laurier. . . . . ..*Printed for both distribution and sessional papers.*

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29. Report of the Secretary of State of Canada for the year ended March 31, 1909. Presented 25th November, 1909, by Hon. C. Murphy.
Printed for both distribution and sessional papers.

29*a*. Report of the Imperial Conference with representatives of the self-governing Dominions on the Naval and Military Defence of the Empire, 1909. Presented 17th November, 1909, by Sir Frederick Borden. Also with additional papers relating to Australia and New Zealand, presented 10th December, 1909, by Hon. L. P. Brodeur.
Printed for both distribution and sessional papers.

29*b*. Report of the Department of External Affairs, 1909.
Printed for both distribution and sessional papers.

30. Civil Service List of Canada, 1909. Presented 12th January, 1910, by Hon. C. Murphy.
Printed for both distribution and sessional papers.

31. First Annual Report of the Civil Service Commission of Canada, for the period from September 1st, 1908, to August 31, 1909. Presented 10th December, 1909, by Hon. C. Murphy.
Printed for both distribution and sessional papers.

32. Annual Report of the Department of Public Printing and Stationery, for the fiscal year ended 31st March, 1909. Presented 18th April, 1910, by Hon. C. Murphy.
Printed for both distribution and sessional papers.

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33. Report of the Joint Librarians of Parliament for the year 1908-9. Presented 11th November, 1909, by the Hon. the Speaker.. .. ..*Printed for sessional papers.*

34. Report of the Minister of Justice as to Penitentiaries of Canada, for the fiscal year ended 31st March, 1909. Presented 12th November, 1909, by Hon. A. B. Aylesworth.
Printed for both distribution and sessional papers.

35. Report of the Militia Council, for the fiscal year ended 31st March, 1909. Presented 1st December, 1909, by Sir Frederick Borden.
Printed for both distribution and sessional popers.

35*a*. Interim Report of the Militia Council for the Dominion of Canada on the Training of the Militia during the season of 1909. Presented 25th April, 1910, by Sir Frederick Borden.. .. .. *Printed for distribution.*

36. Report of the Department of Labour, for the fiscal year ended 31st March, 1909. Presented 12th March, 1909, by Hon. L. M. King.
Printed for both distribution and sessional papers.

36*a*. Report of the Deputy Minister of Labour on industrial conditions in the Coal Fields of Nova Scotia. Presented 25th November, 1909, by Hon. L. M. King.
Printed for both distribution and sessional papers.

37. Fifth Report of the Commissioners of the Transcontinental Railway, for the year ended 31st March, 1909. Presented 12th November, 1909, by Hon. G. P. Graham.
Printed for both distribution and sessional papers.

38. Statement of Governor General's Warrants issued since the last session of parliament on account of the fiscal year 1909-10. Presented 15th November, 1909, by Hon. W. S. Fielding.. .. ..*Not printed.*

CONTENTS OF VOLUME 19—*Continued.*

39. Statement in pursuance of section 17 of the Civil Service Insurance Act, for the year ended 31st March, 1909. Presented 16th November, 1909, by Hon. W. S. Fielding. *Not printed.*

40. Statement of expenditure on account of miscellaneous unforeseen expenses, from the 1st April, 1909, to the 10th November, 1909, in accordance with the Appropriation Act of 1909. Presented 16th Novewber, 1909, by Hon. W. S. Fielding.. .. .. ..*Not printed.*

41. Statement of superannuation and retiring allowances in the Civil Service during the year ended 31st December, 1909, showing name, rank, salary, service, allowance and cause of retirement of each person superannuated or retired, also whether vacancy filled by promotion or by new appointment, and salary of any new appointee. Presented 16th November, 1909, by Hon. W. S. Fielding.. .. ..*Not printed.*

42. Return of constables employed on the Transcontinental Railway, as required under the provisions of section 6, chapter 92, of the Revised Statutes of Canada. Presented 19th November, by Hon. A. B. Aylesworth.. .. ..*Not printed.*

42*a*. Return to an order of the House of Commons, dated 16th November, 1909, for a copy of all reports, letters, communications and documents touching or relating to the resignation of Hugh D. Lumsden from his position as Chief Engineer of the National Transcontinental Railway, including a copy of all letters, communications or reports of the said Hugh D. Lumsden to the Prime Minister, touching or relating to his resignation, or to the affairs of the National Transcontinental Railway. Presented 23rd November, 1909.—*Mr. Borden.. .. ..Printed for both distribution and sessional papers.*

42*b*. Return to an order of the House of Commons, dated 29th November, 1909, for a copy of all correspondence had between the Minister of Railways and the Transcontinental Railway Commission relating to the sub-letting of contracts for the construction of the Transcontinental Railway in New Brunswick; and the failure of sub-constractors to make payment for supplies and material furnished by farmers, merchants and others for use in said work. Presented 13th December, 1909.—*Mr. Crocket.. ..Not printed.*

42*c*. Return to an order of the House of Commons, dated 29th November, 1909, for a copy of all correspondence connected with and relating to the letter of the Auditor General to the Secretary of the National Transcontinental Railway Commission of the 18th of August, 1909, in which the Auditor General points out that 64,192 cubic yards of excavation, classified at an average price of 83·66 cents, were subsequently reclassified at $1.10¼ per cubic yard, thereby increasing the cost by the sum of $17,453.80, and asking for an explanation. Presented 13th December, 1909.—*Mr. Lennox.. .. ..Not printed.*

42*d*. Return to an order of the House of Commons, dated 17th December, 1909, for a copy of all certificates, recommendations, letters, memoranda and documents in connection with the promotion of Mr. McIntosh on the 16th of November, 1908, from the position of Division Engineer, Division No. 6, District F, to the position of Assistant District Engineer, District F, and the increase of his salary from $200 to $275 per month; also of all complaints against the professional conduct or efficiency of Mr. McIntosh made to the Transcontinental Railway or the Railway Department before the date of promotion. Presented 24th January, 1910.—*Mr. Lennox.. .. ..Not printed.*

42*e*. Return to an order of the House of Commons, dated 29th November, 1909, for a copy of all correspondence between the following legal firms: Rothwell & Johnson, Rothwell, Johnson & Bergeman, and Rothwell, Johnson & Stubbs, on the one side, and the Government or the Transcontinental Railway Commissioners, on the other side, as to the instructions to the solicitors for legal services rendered in passing titles of property

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acquired by the Government, and in respect to the bill of cost and charges of the said several firms; and all papers, documents, letters, telegrams and correspondence having any reference to the items of charges of said firms appearing on page W—370 of the Auditor General's Report of 1909, amounting in the whole to $1,376.60. Presented 24th January, 1910.—*Mr. Meighen*.. .. ..*Not printed.*

42*f*. Return to an order of the House of Commons, dated 17th December, 1909: 1. Showing the names and addresses of the engineers who surveyed and located the line of the Eastern Division of the Transcontinental Railway, and the part of the railway covered by the work of each engineer. 2. The name and address of the engineer who prepared the estimates of quantities and prices of the section or portion of the line covered by each contract. 3. The names of the engineers acting upon behalf of the Railway Department, or Railway Commission, and the Grand Trunk Pacific Railway Company, in determining upon the form and wording of the specifications, as provided for by the seventh section of the agreement between the government and the company. 4. The names of such of the engineers acting in any of the capacities aforesaid, as subsequently acted in connection with construction, when and for how long, in what capacity, where their services have been dispensed with, and for what cause. 5. The names and addresses of all the engineers in the service of the Railway Commission, or Railway Department, on Districts B and F of the said Eastern Division, since the commencement of the construction of the railway, the capacity in which each was employed, the salary in each case, the promotions, increases of salary, retirements and dismissals which have taken place, the cause for promotion, dismissal or retirement in each case, and a copy of all complaints lodged with the commissioners or their chief engineer or the department, against any of these engineers. 6. The names of the engineers now in charge of or engaged upon District B and F, and the official position and salary of each. Presented 3rd February, 1910.—*Mr. Lennox*.. .. ..*Not printed.*

42*g*. Interim Report of the Commissioners of the Transcontinental Railway, being for the nine months ended 31st December, 1909, setting forth the receipts and expenditure in connection with the Eastern Division of the National Transcontinental Railway, and such other matters in relation to the said railway as appear to be of public interest. Presented 4th February, 1910, by Hon. G. P. Graham.. .. ..*Not printed.*

42*h*. Return to an order of the House of Commons, dated 7th February, 1910, showing all written objection to classification upon the Transcontinental Railway made since July 28th, 1908, and in reference to overbreak or other over expenditure since 2nd October, 1908. Presented 17th February, 1910.—*Mr. Lennox*.. .. ..*Not printed.*

42*i*. Return to an order of the House of Commons, dated 24th January, 1910, showing: (*a*) The names of the contractors for the construction of the National Transcontinental Railway and the number, mileage and location of the contract; (*b*) the estimated expenditure under each contract at the time the contract was let, based upon the engineer's estimate of quantities, at dates of the accepted tender; (*c*) the estimated increase or decrease in expenditure in each case occasioned by change in location, specification, construction, material, grade or other change subsequent to the letting of the contract; (*d*) the amount returned and claimed on progress estimates under each contract to date, the amount actually paid under each contract, and the estimated amount yet required to complete the work in each case; (*e*) the engineer's estimated quantity of solid rock, loose rock and common excavation in the section of line covered by each contract, the estimated cost under these headings, based upon the rates of the accepted tender, the actual expenditure under these headings to date, as shown by progress estimates, the amounts actually paid to date under these headings, and the

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estimated quantities of work yet to be done, and the estimated sums yet to be paid under these headings in respect of each contract. Also as to all contracts other than the twenty-one covered by the Return brought down on the 26th of April, 1909, No. 46h: a copy of (*a*) engineer's itemized estimate of quantities as to each contract of each class of work and material, as set out in the schedules and itemized, and total estimated expenditure based upon rates of accepted tender, and (*d*) a copy of all tenders received; (*c*) itemized quantities of work and material under the various headings actually done or furnished to date, and itemized, and total expenditure therefor; itemized statement of estimated quantities of work yet to be done and material, &c., yet to be furnished and itemized, and total estimated cost of the same based on contract prices. Presented 17th February, 1910.—*Mr. Lennox.*

Not printed.

42*j*. Return to an address of the House of Commons, dated 14th February, 1910, for a copy of all correspondence, submissions, references, reports, returns and orders in council, in reference to the adjustment of the disputed item of 581 cubic yards of excavation, claimed at 10 instead of $2.50 a cubic yard, referred to in a letter of the Auditor General to the Secretary of the Transcontinental Commission, dated the 18th August, 1909. Presented 24th February, 1910.—*Mr. Lennox*.. .. ..*Not printed.*

43. Report of Robert M. Coulter, Deputy Postmaster General, on his mission to Australia and New Zealand to discuss with the governments of those countries the possibility of taking steps that would lead to the inauguration of a steamship service between England, Australia and New Zealand, via Canada, on the Atlantic and Pacific oceans. Presented 22nd November, 1909, by Sir Wilfrid Laurier.. ..*Printed for sessional papers.*

44. Return to an order of the House of Commons, dated 16th November, 1909, for a copy of all correspondence, documents and papers of every description not already brought down touching the recent treaty with the French Republic, or any modification therein. Presented 24th November, 1909.—*Mr. Borden*.. .. ..*Not printed.*

45. Minutes of proceedings of the Board of Internal Economy of the House of Commons for the past year, pursuant to Rule of the House No. 9. Presented 24th November, 1909, by the Hon. The Speaker.. .. ..*Not printed.*

46. Detailed statement of all bonds or securities registered in the Department of the Secretary of State of Canada, since last return (2nd February, 1909), submitted to the parliament of Canada under section 32 of chapter 19, of the Revised Statutes of Canada, 1906. Presented 25th November, 1909, by Hon. C. Murphy.. .. ..*Not printed.*

47. Return under chapter 125 (R.S.C), 1906, intituled: 'An Act respecting Trade Unions,' submitted to parliament in accordance with section 33 of the said Act. Presented 25th November, 1909, by Hon. C. Murphy.. .. ..*Not printed.*

48. Return of orders in council passed between the 1st of December, 1908 and the 31st October, 1909, in accordance with the provisions of section 5 of the Dominion Land Survey Act, chapter 21, 7-8 Edward VII. Presented 29th November, 1909, by Hon. F. Oliver.. .. ..*Not printed.*

49. Return of orders in council which have been published in the *Canada Gazette* and in the *British Columbia Gazette*, between 1st December, 1908, and 31st October, 1909, in accordance with provisions of subsection (*d*) of section 38 of the regulations for the survey, administration, disposal and management of Dominion lands within the 40-mile railway belt in the province of British Columbia. Presented 29th November, 1909, by Hon. F. Oliver.. .. ..*Not printed.*

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50. Return of orders in council passed between the 1st December, 1908, and the 31st October, 1909, in accordance with the provisions of the Forest Reserve Act, sections 7 and 13 of chapter 56, Revised Statutes of Canada. Presented 29th November, 1909, by Hon. F. Oliver.. .. ..*Not printed.*

51. Return of orders in council passed between the 1st December, 1908, and the 31st October, 1909, in accordance with the provisions of the Rocky Mountain Park Act, section 5 of chapter 60, Revised Statutes of Canada. Presented 29th November, 1909, by Hon. F. Oliver.. .. ..*Not printed.*

52. Return of orders in Council which have been published in the *Canada Gazette*, between 1st December, 1908, and 31st October, 1909, in accordance with the provisions of section 77 of the Dominion Lands Act, chapter 20 of the Statutes of Canada, 1908. Presented 29th November, 1909, by Hon. F. Oliver.. .. ..*Not printed.*

53. Return to an order of the House of Commons, dated 18th November, 1909, for a copy of all correspondence and papers respecting the application by the United States immigration service to the Minister of the Interior, for the deportation of one Mrs. Goby, an alleged immigrant, to the United States of America from Canada, entering at the port of Sault Ste. Marie, Michigan, together with a copy of all orders, decisions, reports and returns regarding any action taken thereupon by the Department of the Interior. Presented 1st December, 1909.—*Mr. Boyce.. .. ..Not printed.*

54. General orders issued to the Militia between the 1st February, 1909, and the 1st November, 1909, inclusive. Presented 1st December, 1909, by Sir Frederirck Borden.
Not printed.

55. Report of the Ottawa Improvement Commission for the fiscal year ended 31st March, 1909. Presented 3rd December, 1909, by Hon. W. S. Fielding.
Printed for sessional papers.

56. Certified copy of a Report of the Committee of the Privy Council, approved by His Excellency the Governor General on the 12th May, 1909, on the subject of a despatch from the Right Honourable the Principal Secretary for the Colonies, transmitting an invitation from the Honorary Secretary of the 12th International Congress on Alcoholism to the Government of Canada, to appoint delegates to attend the congress in question. Presented 6th December, 1909, by Sir Wilfrid Laurier.. .. ..*Not printed.*

57. Return to an order of the House of Commons, dated 22nd November, 1909, for a copy of all memorials, reports, correspondence and documents in the possession of the government not already brought down, relating to a survey of a route for a tunnel under the Straits of Northumberland between the province of Prince Edward Island and the mainland of Canada, and also relating to the construction of such tunnel. Presented 6th December, 1909.—*Mr. Warburton.. .. ..Not printed.*

58. Return (in so far as the Department of the Interior is concerned) of copies of all orders in council, plans, papers, and correspondence which are required to be presented to the House of Commons, under a resolution passed on 20th February, 1882, since the date of the last return, under such resolution. Presented 7th December, 1909, by Hon. F. Oliver.. .. ..*Not printed.*

58a. Return of lands sold by the Canadian Pacific Railway during the year ended on the 31st October, 1909. Presented 18th January, 1910, by Hon. F. Oliver.. .. ..*Not printed.*

59. Return to an address of the House of Commons, dated 16th November, 1909, for a copy of all orders in council at present in force with reference to immigration; also a copy of all regulations in force at the present time in connection with immigration in Canada. Presented 9th December, 1909.—*Mr. Wilson (Lennox).. .. .. ..Not printed.*

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60. Return to an order of the House of Commons, dated 22nd November, 1909, showing:— 1. The application made to the Railway Board for protection of railway crossings under the provisions of chapter 32 of the Statutes of 1909, an Act to amend the Railway Act, and (*a*) the cases in which these applications have been granted, (*b*) in which they have been refused, when refused, and the reason for refusal. 2. The names of the persons in each case making the application. 3. The cases in which the board of its own motion made an order for the protection of crossing under said act. 4. The appropriation made by the board out of the Railway Grade Crossing Fund under said act, and the crossing in respect of which such appropriations were made. 5. The character or description of the crossing in question, and the character, description and cost in each case of the construction work of protection ordered or directed by the board. 6. The amount in each case ordered or directed by the board to be paid out of the said fund and by the railway company and municipality or other party to the proceedings. 7. The cases in which the work ordered to be done (*a*) has been completed, (*b*) in which it is under construction, (c) the cases in which the municipality has submitted to or complied with the order of the board, and (*d*) cases in which the municipality has refused to comply. Presented 14th December, 1909.—*Mr. Lennox.*
Not printed.

61. Return to an order of the House of Commons, dated 24th November, 1909, showing what Indian lands within the territories now covered by each of the provinces of Manitoba, Saskatchewan and Alberta, have been sold yearly since 30th June, 1900, such information to be detailed as follows: the name of each reserve, the area sold therein yearly, the average prices realized, and the cash paid to the Indians concerned at the time of sale, under the terms of surrender. Presented 15th December, 1909.—*Mr. McGrath.*
Not printed.

62. Return to an order of the House of Commons, dated 22nd November, 1909, showing the areas sold or leased as oil lands in the Northwest, giving the amount sold or leased, the date when, and the parties to whom sold or leased, and if leased, the various assignments, if any, made thereof, and the dates of the same. Presented 15th December, 1909.—*Mr. Foster*.. .. ..*Not printed.*

63. Return to an order of the House of Commons, dated 16th November, 1909, showing: Copy of the contract for the dredging of the Napanee river during the summer of 1909; name of the contractor who had the contract; names of the engineers in charge of the work and the inspector; the depth and width of the channel after dredging; the length of time taken to complete the work; the total amount of money expended on the work; whether the work was done by day work or by the yard; and the prices paid by day or by yard. Presented 15th December, 1909.—*Mr. Wilson (Lennox).*
Not printed.

64. Return made to parliament in accordance with chapter 47, section 4, Revised Statutes, 1906, containing copy of the orders in council for the issue of licenses to United States fishing vessels to enable them to buy bait, ice, lines, &c. during the year 1910. Presented 16th December, 1909, by Hon. L. P. Brodeur.. .. ..*Not printed.*

65. Return, in pursuance of section 16 of the Government Annuities Act, 1908, containing statement of the business done during the fiscal year ending March 31st, 1909, together with a copy of the regulations made under section 13 of the act. Presented 17th December, 1909, by Hon. W. S. Fielding.. .. ..*Printed for sessional papers.*

66. Report of the Commissioner, Dominion Police Force, for the year 1909. Presented 12th January, 1910, by Hon. A. B. Aylesworth.. .. ..*Not printed.*

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67. Return to an order of the House of Commons, dated 29th November, 1909, for a copy of all reports and correspondence in connection with section 29, township 9, range 22, west of the 4th meridian, as well as applications for railway right of way and station grounds within such land. Presented 12th January, 1910.—*Mr. McGrath..Not printed.*

68. Return to an order of the House of Commons, dated 6th December, 1909, for a copy of all papers, reports, correspondence, &c., between the Department of the Interior and its officers and agencies and any other persons, relative to the s.w. ¼ section 24-38-10 w. 3rd m., and the respective claims of Allan R. Mudie and Thos. G. Warwick. Presented 12th January, 1910.—*Mr. Lake.. .. ..Not printed.*

69. Return to an order of the House of Commons, dated 15th December, 1909, showing the names of the two hundred and twenty-one members of the House of Commons, as provided for in 6-7 Edward VII., Dominion Statutes, 1907, chapter 41, section 1, excepting only such seat or seats as have fallen vacant. Presented 12th January, 1910.—*Mr. White (Renfrew).. .. ..Not printed.*

70. Return to an order of the House of Commons, dated 24th November, 1909, showing the total number of incubators and brooders, respectively, imported into Canada from the United States during the fiscal year ending March 31st, 1909, and the total cost of each. Presented 13th January, 1910.—*Mr. White (Renfrew).. .. ..Not printed.*

71. Return to an order of the House of Commons, dated 22nd November, 1909, for a copy of all letters, telegrams, applications, contracts and correspondence with regard to the taking of spawn for the fish hatchery at Snake Island, Winnipegosis, for the years 1907, 1908 and 1909. Presented 13th January, 1910.—*Mr. Campbell.. .. ..Not printed.*

72. Return to an order of the House of Commons, dated 15th December, 1909, showing a list of all exports, technical advisers, and special officers generally, engaged by the government in connection with the naval defence programme and its execution, giving names, special qualifications, duration of engagement and rate of remuneration, as well as the total amount expended to date under the above; also amounts expended to date for articles, books, instruments and objects of all kinds in connection with said naval defence programme. Presented 13th January, 1910.—*Mr. Monk.*
Printed for sessional papers.

73. Return to an order of the House of Commons, dated 29th November, 1909, showing the number of lighthouses in British Columbia, the salaries of the lightkeepers at the end of the financial year 1907-1908; what the salaries are to-day; why some salaries have been reduced and when such reduction took place. Presented 13th January, 1910.—*Mr. Smith (Nanaimo).. .. ..Not printed.*

74. Return to an address of the House of Commons, dated 18th November, 1909, for a copy of all orders in council, correspondence, documents and papers of every description relating to the proposed sale or disposal of any part of the Peigan Indian Reserve in the province of Alberta, including any advertisement of such sale and record of the proceedings, whether by vote or otherwise, under which any of the Indians on said reserve purported to give their consent thereto. Also a return showing the actual number of Indians on said reserve entitled to vote or elect in respect of such proposed sale, and all other information in the possession of the department or its officials relating to or in any way referring to the proceedings in connection with such proposed sale. Presented 13th January, 1910.—*Mr. Herron.. .. ..Not printed.*

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75. Return to an order of the House of Commons, dated 17th December, 1909, for a copy of all papers, reports, correspondence, &c., between the Department of the Interior, and its officers and agencies, and any other person, relative to the s.w. ¼ section 16-30-9, w. 3rd m., and the respective claims thereto of Thomas Paterson and J. F. Sibbald. Presented 13th January, 1910.—*Mr. Lake*.. .. ..*Not printed.*

76. Return to an order of the House of Commons, dated 24th November, 1909, showing approximately the amount of revenue collected by the government between the 1st January, 1908, and the 1st November, 1909, in the province of Alberta and Saskatchewan, respectively, on account of payments for coal lands, coal royalties, bonuses and rental on timber lands, timber dues, hay lands, grazing lands, irrigation areas, school lands, minerals, water powers, stone quarrying lands, Indian lands, or on account of any natural resources within each of the above provinces. Presented 13th January, 1910—*Mr. McCarthy*.. .. ..*Not printed.*

77. Return to an order of the House of Commons, dated 17th December, 1909, for a copy of all documents and papers relating to the western shipment of grain. Presented 13th January, 1910.—*Mr. Taylor (Leeds)*.. .. ..*Not printed.*

78. Return to an order of the House of Commons, dated 24th November, 1909, for a copy of all letters, correspondence and complaints, or other papers, from Indians or others regarding the manner in which the St. Peter's Indians have been treated relating to lands allotted to them by the government in consideration of the surrender of St. Peter's Reserve. Presented 13th January, 1910.—*Mr. Bradbury*.. .. .. ..*Not printed.*

78*a*. Return to an order of the House of Commons, dated 13th December, 1909, for a copy of all instructions to J. O. Lewis, Indian Agent at Selkirk, regarding the delivery of patents to Indians entitled to same, in connection with the surrender of St. Peter's Reserve. Presented 13th January, 1910.—*Mr. Bradbury*.. .. ..*Not printed.*

78*b*. Return to an order of the House of Commons, dated 6th December, 1909, showing all moneys paid by the government in connection with the surrender of St. Peter's Reserve, to whom paid, and for what; also all moneys paid in connection with the moving of the Indians to the new reserve on Lake Winnipeg, to whom paid, and for what. Presented 13th January, 1910.—*Mr. Bradbury*.. .. ..*Not printed.*

78*c*. Return to an order of the House of Commons, dated 29th November, 1909, for a copy of all instructions sent to the Indian Agent at Selkirk, in connection with St. Peter's Indians pledging or disposing of their holdings, secured through the surrender of their reserve; a statement showing all those entitled to receive patents for lands in connection with the surrender of the reserve, the applications made by those so entitled for their patents, and receipts signed for the patents by those so entitled on delivery of the patent. Presented 13th January, 1910.—*Mr. Bradbury*.. .. ..*Not printed.*

78*d*. Copy of papers relating to St. Peter's Indian Reserve, comprising letters of instructions and commission to Mr. H. M. Howell, Report of H. M. Howell, and advertisement in connection with auction sale of lands. Presented 27th January, 1910, by Hon. F. Oliver.. .. ..*Not printed.*

78*e*. Return to an order of the House of Commons, dated 17th January, 1910, for a copy of all accounts of George Tracy, of Selkirk, against Indians of St. Peter's Reserve, Manitoba, now on file in the Department of Indian Affairs here, and of all correspondence in the department in relation thereto. Presented 31st January, 1910.—*Mr. Bradbury*.. .. ..*Not printed.*

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78*f*. Return to an order of the House of Commons, dated 14th February, 1910, for a copy of all papers and instructions given to A. S. Williams, Law Clerk of the Department of Indian Affairs, and to S. Swinford, Inspector of Indians, Winnipeg, in connection with their work among the St. Peter's Indians in Manitoba; also a copy of the report of these gentlemen in connection with the work they have been engaged in during the last few weeks among the St. Peter's Indians. Presented 4th April, 1910.—*Mr. Bradbury.*
Not printed.

79. Return to an order of the Senate, dated 26th November, 1909, for a copy of the several complaints which in 1908 and 1909 have been made by different parties to the Minister of the Interior or to the Superintendent of Immigration of the manner in which immigrants are treated at Quebec. Presented 13th January, 1910—*Hon. Mr. Landry.*
Not printed.

80. Return to an order of the Senate, dated 2nd December, 1909, for a copy of all accounts filed during the fiscal year 1907-8 in the Department of the Interior by Sosthène Morisset, one of the clerks of the Immigration office at Quebec. Presented 13th January, 1910.—*Hon. Mr. Landry*.. .. ..*Not printed.*

80*a*. Return to an order of the Senate, dated 3rd December, 1909, for a copy (1) of the medical certificate given by Doctors Pagé and Nadeau to justify the order for the sending back of the immigrant Otta Nittenen, in November, 1908; (2) of the correspondence on this subject exchanged between the agent of the Canadian Pacific Railway, Mr. Jules Hone, and Messrs. Lavoie and Stein of the Immigration Office at Quebec, and the Superintendent General of Immigration at Ottawa, Mr. W. D. Scott, in November and December, 1908. Presented 13th January, 1910.—*Hon. Mr. Landry.*
Not printed.

80*b*. Return to an order of the Senate, dated 3rd December, 1909, for a copy of the attendance and pay-lists of the employees in the Immigration Office at Quebec, for the first four months of the present year. Presented 13th January, 1910.—*Hon. Mr. Landry.*
Not printed.

80*c*. Return to an order of the Senate, dated 2nd December, 1909, for the Report of Detentions and Deportations at the port of Quebec for the month of November, 1908. Presented 13th January, 1910.—*Hon. Mr. Landry*.. .. ..*Not printed.*

80*d*. Return to an address of the Senate, dated 25th January, 1910, for a copy of the attendance and pay-lists of the employees of the Immigration Office at Quebec, for the months of January, February, March and April of 1909. Presented 10th February, 1910.—*Hon. Mr. Landry*.. .. ..*Not printed.*

80*e*. Return to an order of the Senate, dated 12th January, 1910, for a copy of the report made in 1906 to the Department of the Interior by Mr. Blair, upon the inquiry held by him at Quebec, at the Immigration Office, on the subject of certain complaints concerning the administration of the said office. Presented 22nd February, 1910.—*Hon. Mr. Landry*.. .. ..*Not printed.*

80*f*. Return to an order of the House of Commons, dated 13th December, 1909, for a copy of the correspondence exchanged since the 1st of January, 1908, between the medical examiners of immigrants and the Superintendent of Immigration, respecting the inspection of immigrants. Presented 23rd March, 1910—*Mr. Paquet*.. ..*Not printed.*

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80*g*. Return to an order of the Senate, dated 10th March, 1910, for the production of all complaints made to the Department of the Interior against the present Immigration Agent at Quebec, and of all the correspondence exchanged on this subject between the different parties in question and the department or any of its officers. Presented 6th April, 1910.—*Hon. Mr. Landry*.. .. ..*Not printed.*

80*h*. Return to an order of the Senate, dated 2nd March, 1910, calling for the production of all correspondence between the present Immigration Agent at Quebec and his superior in the Department of the Interior, on the subject of his retirement, dismissal or promotion of officers under his control, or of the increase or decrease of their salaries or remuneration. Presented 6th April, 1910.—*Hon. Mr. Landry*.. .. ..*Not printed.*

80*i*. Return to an order of the Senate, dated 1st February, 1910, for a copy of the accounts sent by the restaurant keeper, Jacques Dery, to the Immigration Department, for meals furnished the employees of the Immigration Office at Quebec, from 1st January, 1906, until 1st January, 1910, specifying separately for each employee, the date of each meal and the sum asked, and also a copy of all the accounts sent, from time to time, by the same restaurant keeper during the same period, for meals given and provisions furnished in connection with the Immigration Office at Quebec. Presented 6th April, 1910.—*Hon. Mr. Landry*.. .. ..*Not printed.*

80*j*. Return to an order of the Senate, dated 10th March, 1910, for a copy of all correspondence exchanged between the Immigration Department and Doctor Jos. P. Lavoie, Immigration Agent at Quebec, since the appointment of the latter, with regard to the following subjects, to wit. The expense of equipping his office, the placing of the telephone, the cost and the use of that instrument; the installing of electric fans in the immigrants' eating room, and in the agent's dining room, the changes to be made in the personnel of the Quebec office; the appointment of new employees; and every subject concerning the internal administration of his office. Presented 13th April, 1910.—*Hon. Mr. Landry*.. .. ..*Not printed.*

80*k*. Return to an order of the Senate, dated 7th April, 1910, for the production of the requests or of the complaints made by the navigation companies for the past five years, on the subject of the insufficiency of the means of accommodation put at the disposal of the authorities of Grosse Isle for the benefit of the immigrants, obliged by the regulations to remain there. Presented 2nd May, 1910.—*Hon. Mr. Landry*.. ..*Not printed.*

80*l*. Return to an order of the Senate, dated 26th April, 1910, calling for the production of a copy of the attendance list of the employees of the Immigration Office at Quebec for the month of October, 1908. Presented 4th May, 1910.—*Hon. Mr. Landry*..*Not printed.*

80*m*. Return to an order of the Senate, dated 7th April, 1910, calling for the production of a copy of the attendance lists of the employees of the Immigration Office at Quebec, from the 1st April, 1909, to this day, and also for a copy of the pay-lists of the same employees during the same period. Presented 4th May, 1910.—*Hon. Mr. Landry.*
Not printed.

81. Return to an order of the House of Commons, dated 16th November, 1909, showing in relation to each dog-fish reduction plant or establishment for the reduction of dog-fish erected by or for the government or maintained in whole or in part by the government, (*a*) the cost of construction, (*b*) the cost of maintainance for each year, (*c*) the location, (*d*) the quantity of dog-fish treated thereat in each year, and (*e*) the amount realized from the sale of or the disposal in each year. Presented 17th January, 1910.—*Mr. Borden.*
Not printed.

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82. Return to an order of the House of Commons, dated 6th December, 1909, for a copy of all correspondence, reports, documents and papers touching the matter of the salmon fishery of Salmon River, Digby county, N.S., and the fishways or passes in said river. Presented 17th January, 1910.—*Mr. Jameson*.. .. ..*Not printed.*

83. Return to an order of the House of Commons, dated 22nd November, 1909, for a copy of all reports, correspondence and other papers relating to the condition and maintenance of the buoy on the Old Proprietor Ledge in the Bay of Fundy since January 1st, 1908; also of all reports, correspondence and other papers relating to the establishment, equipment, maintenance and operation of the life boat and life saving station at Seal Cove, in the Bay of Fundy; also copy of all instructions issued to Captain Lugar in connection with the inquiry into the wreck of the ss. *Hestia*, and of the findings and report on said inquiry. Presented 17th January, 1910.—*Mr. Daniel*.. .. ..*Not printed.*

83*a*. Supplementary Return to No. 83. Presented 14th February, 1910.. .. .. ..*Not printed.*

84. Return to an order of the House of Commons, dated 15th December, 1909, showing: 1. The present indebtedness to the Dominion government of the Montreal Turnpike Trust (*a*) on capital account, (*b*) for arrears of interest. 2. The amount collected at each toll gate belonging to the said turnpike trust during the year ending 31st December, 1908, and for the first six months of the year 1909. 3. The names of all parties who have commuted their tolls during each of the two above mentioned periods and the amount of the commutation money paid to the trust in each case. 4. The amount expended on each section or road division under the control of said trust, during the year ending 31st December 1908, and the contracts given out during the said year, with the name of the contractor and the date and amount of money involved in each case; and a statement in each case also as to whether the contract was awarded after tender called through newspapers. 5. The amount paid out during the said two first above-mentioned periods at each toll gate for salaries of day and night guardians and any other expenditures at each of the toll gates maintained. 6. The names of all parties holding passes for free use of the roads under control of said trust during the period above mentioned, with a statement, in each case, of the reason why the pass was so granted. 7. The expenses of the said trust during each of the two periods above mentioned for rent, salaries of the office, inside or outside service, giving name and remuneration of each official and amounts paid to any civil engineer employed by the trust. 8. The actual present indebtedness in detail of said trust outside of its bonds due to the government of Canada. 9. The amounts collected by said trust during the above-mentioned periods from municipalities under special agreements made as to their share pro rata of the bonded indebtedness of the turnpike trust. 10. The names of all members of the trust elected to represent the bondholders, with date of election in each case, during said two periods. 11. The amounts paid by the trust to any of its members or officials during said two periods, whether as travelling or personal expenses, or indemnity for attendance or for any other reason whatever. 12. The name of any auditor who has acted during said two periods, and the amount paid such auditor. 13. An exact statement of any amounts paid by the trust for purchase or lease of any property outside of the city of Montreal and in defraying the travelling or displacement or maintenance expenses of the trustees or their officials generally. Presented 17th January, 1910.—*Mr. Monk*.. .. ..

CONTENTS OF VOLUME 19—*Continued.*

85a. Return to an order of the House of Commons, dated 15th December, 1909, for a copy of petition of right of pleas offered in defence in the case of the suit of the North Atlantic Trading Company vs. the King, in the Exchequer Court, and of all correspondence as well as reports and petitions which led up to the government granting a fiat to the suppliant; and a copy of all letters having reference to the said claim now sued upon from the time of the final payment to the said North Atlantic Company. Presented 20th January, 1910.—*Mr. Monk*.. .. ..*Not printed.*

86. Return to an order of the House of Commons, dated 6th December, 1909, for a copy of all correspondence, documents, and reports since the 1st January, 1908, between our immigration agents in Belgium and the Minister of the Interior. Presented 24th January, 1910.—*Mr. Paquet*.. .. ..*Not printed.*

86a. Return to an order of the House of Commons, dated 18th November, 1909, giving the names and addresses of all immigration agents at the present time employed by the government in Great Britain, the continent of Europe, and the United States, on salary, the amount of salary paid to each, the amount of other perquisites paid to each, if any; the names and addresses of all immigration agents at the present time employed by the government in the above countries on commission, the amount of such commission, the rate of commission per immigrant, the amount of other perquisites paid to each; the names and addresses of all special immigration agents in the above countries appointed during the fiscal years 1908-9 and up to 1st November, 1909, the date of the appointment of each, the address of each at the time of his appointment, the amount of salary, commission, or other perquisites paid to each, and the length of time served by each in respect of such appointment. Presented 4th February, 1910.—*Mr. Wilson (Lennox)*.. .. ..*Not printed.*

87. Return to an order of the House of Commons, dated 1st December, 1909, showing all casualties and accidents attended with danger or loss of human life, that have occurred in the Marine and Fisheries Department owing to the operation of pintsch and acetylene gas as an illuminant, for each year since 1880, together with a copy of all papers and reports in connection therewith. Presented 20th January, 1910.—*Mr. Foster.* *Not printed.*

88. Return to an order of the House of Commons, dated 6th December, 1909, for a copy of all correspondence, petitions, and other papers between any person or persons and the government, or any member thereof, or any official thereof, with reference to the dredging of the Napanee river. Presented 20th January, 1910.—*Mr. Wilson (Lennox).* *Not printed.*

89. Return to an order of the House of Commons, dated 13th December, 1909, for a copy of all correspondence had between the Post Office and Public Works Departments, together with all reports and other documents relating to the necessity of providing adequate post office accommodation in the city of Lethbridge. Presented 20th January, 1910.—*Mr. Magrath*.. .. ..*Not printed.*

89a. Supplementary Return to No. 89. Presented 18th February, 1910.. .. .. ..*Not printed.*

90. Interim Report of the Dominion Fisheries Commission for the investigation of the waters on Lac du Bonnet fisheries. Presented 20th January, 1910, by Sir Wilfrid Laurier.. .. ..*Not printed.*

90a. Interim Report of the Dominion Fisheries Commission for the investigation of the waters of Manitoba and the West. Presented 20th January, 1910, by Sir Wilfrid Laurier.. .. ..*Not printed.*

CONTENTS OF VOLUME 19—*Continued.*

90*b*. Return to an order of the House of Commons, dated 22nd November, 1909, for a copy of all letters, telegrams, applications, contracts, lease or leases and correspondence with regard to Lac du Bonnet fishing. Presented 27th January, 1910.—*Mr. Campbell.*
Not printed.

90*c*. Return to an address of the House of Commons, dated 4th February, 1909, for a copy of all correspondence, orders in council, papers and documents relating to the question of fisheries in the Pembina river, in the province of Manitoba, and of regulations or agreements with the United States government in reference to the rivers running from one country into the other. Presented 14th February, 1910.—*Mr. Sharpe (Lisgar).*
Not printed.

91. Return to an order of the House of Commons, dated 15th December, 1909, for a copy of the pay sheets of the employees on the Lachine canal under the supervision of Denis O'Brien for the months of May, June, July, August, September, October and November. Presented 24th January, 1910.—*Mr. Verville*.. .. ..*Not printed.*

92. Return to an order of the House of Commons, dated 24th January, 1910, for a copy of all instructions given during his term of office by the Honourable Speaker Blanchet, to the then sergeant-at-arms, or to other officials in connection with the appointment of sessional messengers. Presented 26th January, 1910.—*Mr. Monk*.. .. .. ..*Not printed.*

93. Return to an order of the House of Commons, dated 18th November, 1909, showing the number of fatal accidents resulting from the use of explosives in the construction of railways and other public works in Canada, reported to either the Department of Railways and Canals, the Department of Public Works, or the National Transcontinental Railway Commissioners, within the past three years; the nature of investigation, if held, after each accident; and what precautions have been taken to prevent or minimize the number of accidents from the use of explosives on construction work in Canada under control of government officials. Presented 26th January, 1910.—*Mr. Robb*.. .. ..*Printed for sessional papers.*

94. Return to an order of the House of Commons, dated 18th November, 1909, for a copy of all applications, petitions, letters, telegrams, documents, plans, specifications and correspondence with reference to, and in any way concerning the application for subsidy for the building of a dry-dock and ship-building yard by certain persons, or company, at or in the vicinity of the town of Sault Ste-Marie, Ontario. Presented 26th January, 1910.—*Mr. Boyce*.. .. ..*Not printed.*

94*a*. Return to an order of the House of Commons, dated 18th November, 1909, for a copy of all applications, petitions, letters, telegrams, documents, plans, specifications and correspondence with reference to and in any way concerning the application for subsidy for the building of a dry-dock and ship-building yard by certain persons, or company, at or in the vicinity of the town of Port Arthur, Ontario. Presented 11th March, 1910.—*Mr. Boyce*.. .. ..*Not printed.*

95. Return to an order of the House of Commons, dated 17th December, 1909, showing: 1. A description by sections, townships and ranges, with areas of all lands included in the area controlled by the Southern Alberta Land Company under agreements with the government, and the date of expiry of such agreements. 2. A description by sections, townships and ranges with areas of all lands held under grazing lease or leases or assignment of leases and now controlled by Messers. Cowdry & Maunsall, or either of them, of lands which lie between the Bow and Belly rivers, bounded on the east by range 12 and on the west by range 19, west of the fourth meridian. Presented 27th January, 1910.—*Mr. McCarthy*.. .. ..*Not printed.*

CONTENTS OF VOLUME 19—*Continued.*

96. Return to an order of the House of Commons, dated 17th January, 1910, showing: 1. What amount has been annually expended by the government since the year 1900 in connection with the Atlantic Fisheries of Canada, apart from sums spent in the fishery protection service and for bounty, in the respective provinces of Nova Scotia, New-Brunswick, Prince Edward Island and Quebec. 2. The amount expended in each of the said provinces annually for fishery breeding purposes, dog-fish reduction plants, bait freezers, cold storage and salaries of officials, respectively. 3. What other general purposes in connection with the fisheries expenditures were made in such provinces within said period. Presented 27th January, 1910. *Mr. Jameson*.. .. .. ..*Not printed.*

97. Regulations of the National Parks of Canada. Presented 28th January, 1910, by Hon. F. Oliver.. .. ..*Printed for sessional papers.*

98. Return to an order of the House of Commons, dated 19th January, 1910, showing all tenders called for by the Department of Railways and Canals, or the purchasing agent of the Intercolonial Railway of Ottawa, at any time during the year 1909, for wire fencing; a copy of any tenders received for such fencing, with the names of the tenderers, and the prices quoted by the said parties tendering for the different kinds of fencing; the names of the successful tenderers, and the particular kind of fencing bought, the gauge of wire, number of stands and distances apart of the brackets in uprights; the price per rod, and where the wire was manufactured. Presented 1st February, 1910.—*Mr. Wilcox*.. .. ..*Not printed.*

98*a*. Return (in part) to an order of the House of Commons, dated 1st December, 1909, for a copy of all papers in connection with the alleged securing and sale or distribution of passes on the Intercolonial Railway within the last two years, and also of all papers of every kind in connection with the alleged padding of pay-lists on the Windsor Branch Railway, and the re-sale of mutilated railway ties to the government. Presented 16th February, 1910—*Mr. Foster*.. .. ..*Not printed.*

98*b*. Return to an order of the House of Commons, dated 24th January, 1910, showing: 1. How many derailments have taken place on the Intercolonial Railway during the year 1909. 2. At what points of the railway each of these derailments took place, and at what dates. 3. The report made in each case, and the cause or causes mentioned in such report. Presented 17th February, 1910.—*Mr. Talbot*.. .. ..*Not printed.*

98*c*. Return to an order of the House of Commons, dated 7th February, 1910, showing: Since the beginning of the autumn train service of 1909 on the Intercolonial Railway, at what time the train leaves Oxford Junction every week day morning for Pictou is due to leave Oxford Junction and arrive at Pictou; the actual time at which the train departed each day from Oxford Junction, the actual time at which it arrived each day at Pictou; the causes of the delay, if any; and what efforts are being made to improve the service in respect of time. Presented 24th February, 1910.—*Mr. Rhodes*.. .. ..*Not printed.*

98*d*. Return to an order of the Senate dated 15th February, 1910, for a statement showing in so many distinct columns: 1. The names of all the employees of the Intercolonial Railway who have been dismissed or who have resigned since the Intercolonial Railway was put under the direction of the Commission of that road. 2. The respective salaries of such employees. 3. The date of their appointment. 4. The date of their dismissal. 5. The number of the division or of the section of the railway where they were employed. 6. The domicile of such employees at the time of their dismissal. Presented 19th April, 1910.—*Hon. Mr. Landry*.. .. ..*Not printed.*

CONTENTS OF VOLUME 19—*Continued.*

98*e*. Return to an order of the House of Commons, dated 14th March, 1910, showing: Since the appointment of the Government Railways' Managing Board, how many employees of the Intercolonial Railway have been dismissed at Truro, at Halifax, and at Stellarton, respectively, with their respective names; at what kind of work each was employed; on what dates, respectively, each one was dismissed; how many of them since re-employed; on what dates, respectively, each one was re-employed; how long since such re-employment each one has remained in the service; how many of them are still in the service, with their names and what each one is employed at. Presented 20th April 1910.—*Mr. Rhodes*.. .. ..*Not printed.*

98*f*. Return to an order of the House of Commons, dated 22nd November, 1909, showing the number of passes issued on the Intercolonial Railway from October 1st, 1908, to October 1st, 1909, whether annual, return trip or trip, to whom issued, the authority and upon whose recommendation the passes were issued and reasons for the issue, the several points at which these passes took effect and the destination, and also a copy of the agreement entered into by the various railways of Canada regarding the non-issuing of passes. Presented 20th April, 1910.—*Mr. Stanfield*.. .. ..*Not printed.*

99. Return to an order of the House of Commons, dated 6th December, 1909, for a copy of all letters, communications, petitions and correspondence with and by the government, or any minister, with regard to the appointment of some one to fill the vacancy on the Board of Railway Commissioners, caused by the demise of the late Honourable Thos. Greenway. Presented 1st February, 1910.—*Mr. Campbell*.. .. .. ..*Not printed.*

100. Return to an address of the House of Commons, dated 29th November, 1909, for a copy of all memorials, reports, correspondence and documents in the possession of the government, relating to the reduction of the representation in the House of Commons, of the several provinces of Nova Scotia, New Brunswick and Prince Edward Island, and of all correspondence with the governments of these provinces with regard to the restoration to the said provinces of such representation as they respectively had at the time of their becoming provinces of this Dominion. Presented 1st February, 1910.—*Mr. Warburton*.. .. ..*Printed for sessional papers.*

101. Return to an order of the House of Commons, dated 19th January, 1910, for a copy of all declarations, affidavits and solemn declarations made and sent to the Post Office Department, or to the Honourable the Postmaster General, since the first day of September, 1907, up to the fifteenth day of January, 1910, respecting the franking privilege asked for the Arthabaska *Gazette*, with copies of the lists of pretended subscribers to that newspaper with the said declarations, affidavits and solemn declarations; also a copy of the report of Mr. A. Bolduc, Post Office Inspector, respecting the said Arthabaska *Gazette*. Presented 2nd February, 1910.—*Mr. Lavergne.*

Not printed.

102. Return to an order of the House of Commons, dated 13th December, 1909, showing a list of the free mail delivery routes which have been established in Canada, including the port of departure and the place of arrival, the length of each, the number of houses on each route, and the number of boxes on each route. Presented 3rd February, 1910.—*Mr. Armstrong*.. .. ..*Printed for sessional papers.*

102*a*. Return to an order of the House of Commons dated 6th December, 1909, for a copy of all papers, letters, telegrams, documents and correspondence with reference to or in any way concerning the installation of free mail delivery service in the city of Sydney, N.S. Presented 17th February, 1910.—*Mr. Maddin*.. .. ..*Not printed.*

CONTENTS OF VOLUME 19—*Continued.*

103. Return to an order of the House of Commons, dated 3rd February, 1910, for a copy of the report of Commander Wm. Wakeham, Special Commissioner and Inspector of Fisheries for the Gulf of St. Lawrence, on the Lobster Industry of the Maritime Provinces and the province of Quebec. Presented 3rd February, 1910, by Sir Wilfrid Laurier.. .. .. .

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by the Canadian Northern Railway Company. 5. What work other than location survey work has been done west of this point up to date, how much and of what nature. 6. What portion, if any, will eventually form part of the proposed line to Vancouver. 7. When the location plan of the route of the C.N.R. between Edmonton and Vancouver, by way of the Yellow Head Pass was approved by the Minister of Railways and the Board of Railway Commissioners. 8. What applications, if any, have been made since to change or in any way alter this location plan. 9. To what extent, if any, the government of Manitoba has exercised its right of control of freight rates under section 8 of schedule B of the Act 1 Edward VII, chapter 53. 10. What effect, if any, this section of said act has had in reducing freight rates in the province of Manitoba. Presented 8th February, 1910.—*Mr. Lennox*.. .. ..*Not printed.*

109. Return for the year ended 31st December, 1909, of permits to take intoxicants into the Northwest Territories, in accordance with the requirements of chapter 62, section 88, of the Revised Statutes of Canada. Presented 8th February, 1910, by Hon. F. Oliver.
Not printed.

110. Return to an order of the House of Commons, dated 6th December, 1909, showing how many officials of the government, or of the Senate or House of Commons, have residences or living rooms in Ottawa supplied by the Crown, with the estimated yearly value and the rent charged in each case. Presented 14th February, 1910.—*Mr. Blain.*
Not printed.

110*a*. Supplementary Return to No. 110. Presented 24th February, 1910... ...*Not printed.*

111. Return to an order of the Senate, dated 26th January, 1910, showing the total amount of lands set apart for school purposes in Rupert's Land, or what now comprises the provinces of Manitoba, Saskatchewan and Alberta. The amount of said lands sold for school purposes yearly before the formation of the provinces of Saskatchewan and Alberta, and the average price realized per acre for same. The amount sold yearly in all the said provinces up to the year 1910, and the average price realized for same. The total amount of acres of school lands yet remaining unsold in the said provinces. Presented 15th February, 1910.—*Hon. Mr. Davis*.. .. ..*Not printed.*

112. Return to an order of the House of Commons, dated 6th December, 1909, showing the amount received by the Minister of Finance under the Land Titles Act, section 159, cap. 110, R.S.C., 57 and 58 Vic., cap. 28, sec. 116; how such fund is invested under sec. 160 of the same Act; the amount of interest which has accrued from said fund; and the amount paid for losses arising from bad titles guaranteed by said fund. Presented 22nd February, 1910.—*Mr. Macdonell*.. .. ..*Not printed.*

113. Return to an order of the House of Commons, dated 17th January, 1910, showing: 1. The name, cost, date of construction, place of construction, and gross tonnage of each of the steam vessels now owned by the Dominion government. 2. The names of those built in Canada. 3. What ones thrown open to Canadian competition. 4. In each case that was open to Canadian competition, the difference between the lowest Canadian tender and the price paid. 5. In each case where a contract was made with a builder for the construction of any of said steam vessels, the month and day when each of said contracts were signed, and when each of said contracts called for delivery of vessels. 6. The price each of the said steam vessels would have cost if the government in each case paid the current Canadian customs duty chargeable on vessels constructed outside of Canada. Presented 24th February, 1910.—*Mr. Sinclair.*
Printed for sessional papers.

CONTENTS OF VOLUME 19—*Continued.*

114. Return to an order of the House of Commons, dated 15th March, 1909, showing: 1. The number and names of the various dredges owned by the government. 2. When and by whom constructed, or when and from whom purchased. 3. The price paid for each dredge. 4. On what work each dredge has been engaged in in each of the years 1905, 1906, 1907 and 1908. 5. How many months during each of these years each dredge was working, and how many cubic yards of material each dredge removed per month. 6. The cost of maintaining and cost of operating each dredge for each of these years. 7. The names of the dredges leased during these years, if any, to whom leased, on what terms, and what amounts were received each year under such leases. Presented 24th February, 1910—*Mr. German*.. .. ..*Not printed.*

115. Return to an order of the House of Commons, dated 19th January, 1910, for a copy of all letters, telegrams, petitions and other correspondence in connection with the establishing of a post office to be named Charleston or Kelmont, on the south side of Assiniboine river, in the parish of St. Charles, province of Manitoba. Presented 24th February, 1910.—*Mr. Staples*.. .. ..*Not printed.*

116. Return to an order of the House of Commons, dated 7th February, 1910, for a copy of all correspondence between the District Officer Commanding Military District Number 11 and the Department of Militia, with reference to the battery of 12 pounder B.L. guns recently sent to Esquimalt, or with reference to the proposal that No. 1 Company of the 5th Regiment, C.A., should train on said guns. Presented 24th February, 1910.—*Mr Barnard*.. .. ..*Not printed.*

117. Return to an order of the House of Commons, dated 7th February, 1910, showing the total cost to Canada of the Military College buildings and grounds, and the amount furnished each year by the government towards its maintenance. Presented 24th February, 1910.—*Mr. Armstrong* . .. .*Printed for sessional papers.*

118. Return to an order of the House of Commons, dated 7th February, 1910, for a copy of all papers, affidavits and correspondence between the Interior Department and John A. Dunn, or anyone in his behalf, and any official of the department, concerning the application for patent of the n.w. ¼ sec. 31, tp. 35, range 16, west of the 2nd meridian. Presented 24th February, 1910.—*Mr. Roche*.. .. ..*Not printed.*

119. Statement of the affairs of the British Canadian Loan and Investment Company (Limited), for the year ended 31st December, 1909. Also a list of the shareholders on 31st December, 1909, in accordance with chapter 57 of 39 Victoria. Presented (Senate) 25th February, by the Hon. the Speaker.. .. ..*Not printed.*

120. Return to an order of the Senate, dated 23rd November, 1909, for a copy of each charter granted since 1st June, 1909, by the Secretary of State, by letters patent under The Companies Act, chapter 79 of the Revised Statutes, 1906. (*a*) Incorporating any company with powers for the development, production, distribution or use of water power for any purposes; or with powers for the production, distribution and use of water power for any purposes; or with powers for the production, distribution and use of electricity in any form by any means, whether directly or by the transformation thereof into heat, light, power or any other kind of energy; or (*b*) conferring such powers upon any company previously incorporated. Presented 1st March, 1910.—*Hon. Mr. David*.. .. ..*Not printed.*

CONTENTS OF VOLUME 19—*Continued.*

121. Return to an order of the House of Commons, dated 14th February, 1910, showing the amounts that have been paid to the *Whig* Publishing Company for printing and advertising by or for any departments of this governrment other than Militia and Defence and Marine and Fisheries, each year, from 1896 to the present time. Presented 2nd March, 1910.—*Mr. Edwards*.. .. ..*Not printed.*

121*a*. Supplementary Return to No. 121. Presented 10th March, 1910.. .. .. ..*Not printed.*

122. Return to an order of the House of Commons, dated 29th November, 1909, for a copy of all letters, correspondence, papers, bills and memorials, passing between the government of the province of Manitoba and the Dominion government since 1st January, 1907. Presented 2nd March, 1910.—*Mr. Roche*.. .. ..*Not printed.*

122*a*. Return to an address of the House of Commons, dated 28th February, 1910, and also of the Senate, dated 24th February, 1910, for a copy of all correspondence between the Dominion government and the government of Manitoba on the subject of the extension of the boundaries of the province of Manitoba since the resolution adopted by the House of Commons on the 13th day of July, 1908. Presented 2nd March, 1910.—*Hon. Mr. Watson and Mr. Molloy*.. .. ..*Not printed.*

123. Return to an address of the Senate, dated 3rd February, 1910, for the production of all correspondence between the Honourable George E. Foster, M.P., and the government of Canada, or any of their members since the year 1878, in relation to appointment of judges to the judicial bench and of members to the Senate of Canada. Presented 6th April, 1910.—*Hon. Mr. Cloran*.. .. ..*Not printed.*

124. Return to an order of the House of Commons, dated 28th February, 1910, showing all sums of money received by the *Soleil* Publication Company, the *Vigie* Publication Company, and the *Daily Telegraph* Publication Company of Quebec, from the different federal departments, and from the Transcontinental Commission, since the first day of March, 1908, and the respective dates of each payment. Presented 3rd March, 1910.—*Mr. Paquet*.. .. ..*Not printed.*

125. Return to an order of the House of Commons, dated 29th November 1909, for a copy of all correspondence, reports, advertisements, tenders, contracts and other papers and documents relative to the maintenance of a wrecking plant on the Pacific or Atlantic coasts, or in the River or Gulf of St. Lawrence, not already brought down. Presented 3rd March, 1910.—*Mr. Taylor (Leeds)*.. .. ..*Not printed.*

126. Return to an order of the House of Commons, dated 19th January, 1910, showing how much money has been paid by this government in each year from 1896 to 1909, both years included, to the firms of Elliott Bros., and of R. Carson, of Kingston, Ontario, for supplies furnished to, or services of any kind performed by the government. Presented 4th March, 1910.—*Mr. Edwards*.. .. ..*Not printed.*

127. Return to an order of the House of Commons, dated 19th January, 1910, showing: 1. The amount of Canada's copper, silver, and gold coinage, respectively, for each of the last ten years, and the cost and profit of each year's coinage, counting the interest and depreciation of the cost of the Canadian Mint at 6 per cent, and the cost of maintenance and staff for the years during which it has been in operation. 2. The amount of United States silver, and at what cost that has been deported each year, and the estimated amount of United States silver current in Canada from year to year. Presented 4th March, 1910.—*Mr. Foster*.. .. ..*Not printed.*

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128. Return to an order of the House of Commons, dated 7th February, 1910, showing the number of chartered banks that have gone into liquidation since 1888, the date of the charters of each, the date of suspension, the capital stock, assets and liabilities, respectively, at date of supension, and the per cent of dividends paid to both holders and depositors respectively. Also what other banks have disappeared by amalgamation or otherwise, with similar information as above in respect to them. Presented 4th March, 1910.—*Mr. Foster*.. .. .. .

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134. Return to an order of the House of Commons, dated 17th February, 1909, showing particulars of the places where the expenditures mentioned in column 365, unrevised *Hansard*, for wharfs in Nova Scotia, New Brunswick and British Columbia, where made, together with amounts expended in each instance for construction and repairs, respectively. Presented 10th March, 1910.—*Mr. Barnard*.. .. ..*Not printed.*

135. Return to an address of the House of Commons, dated 16th November, 1909, for a copy of all petitions addressed to the government or any member thereof, as well as of all letters, correspondence and reports in the possession of the government, and having reference to repairs required at two wharfs built by the government and situated at Ste. Genevieve and Isle Bizard, in Jacques Cartier County, P.Q., and also all the correspondence concerning the construction of those wharfs, and of their use as piers for a bridge. Presented 11th March, 1910.—*Mr. Monk*.. .. ..*Not printed.*

136. Return to an order of the House of Commons, dated 17th January, 1910, showing the foreign exhibitions in which Canada has taken part since July, 1896, the time and place where such was held, the expenditure thereon by the government of Canada, the persons, not common labourers, who had charge of the same or were employed thereat, the sums paid to such severally under the heads of (*a*) salary, (*b*) expenses, and the total cost to the country of each such exhibition; also the amounts received as revenue from the sale of articles or commodities, lumber, buildings and other materials, respectively. The whole statement to be made up in tabular form and the additions of money columns to be made. Presented 11th March, 1910.—*Mr. Foster.*
Printed for sessional papers.

137. Return to an order of the Senate, dated 18th February, 1910, for a statement showing the number of homestead entries, pre-emptions, scrip locations and military warrant locations in townships 35, 36, 37, 38 and 39, in ranges 1 to 19, inclusive, of 4th meridian, and in townships 32, 33 and 34, in ranges 1 to 8 inclusive, west of 4th meridian. Presented 16th March, 1910.—*Hon. Mr. Talbot*.. .. ..*Not printed.*

138. Return to an order of the House of Commons, dated 19th January, 1910, for a copy of all correspondence between the government, or any member thereof, and the Imperial South African Service Association, or any of its officers, in reference to a proposed military reserve to be formed by the members of the Imperial South African Veterans' Association. Presented 17th March, 1910.—*Mr. Macdonald*.. ..*Not printed.*

139. Return to an address of the House of Commons, dated 14th February, 1910, for a copy of all orders in council, correspondence, reports, documents and papers, relating to the right or privilege to raise the waters of Clear Lake, province of Manitoba, application for which was made by a company to develop power on the Little Saskatchewan river. Presented 21st March, 1910.—*Mr. Roche*.. .. ..*Not printed.*

140. Return to an order of the House of Commons, dated 7th February, 1910, for a copy of all correspondence, advertisements, tenders and other documents, in connection with a proposal or proposals to lease a part or the whole of the Black Foot Reserve. Presented 21st March, 1910.—*Mr. Magrath*.. .. ..*Not printed.*

141. Return to an order of the House of Commons, dated 14th March, 1910, for a copy of all correspondence, reports, documents and papers relating to the strike of the employees of the Dominion Coal Company and the Cumberland Coal and Railway Company, in the counties of Cape Breton and Cumberland, Nova Scotia. Presented 23rd March, 1910.—*Mr. Rhodes*.. .. ..*Not printed.*

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141*a*. Supplementary Return to No. 141. Presented 13th April, 1910... .. .. ..*Not printed.*

142. Return to an order of the House of Commons, dated 24th November, 1909, showing the total amounts paid by the government in each year since 1896, for all printing, advertising and lithographing done outside of the Government Printing Bureau; the total amount so paid by each department of the government for such purposes during each year; the names and addresses of each individual, firm or corporation to whom any such moneys have been so paid, and the total amount paid to each individual, firm or corporation in each year since 1896. What portion of the said sums, if any, so paid since 1896, was expended after public advertisement, tender and contract, to whom such tenders were awarded, whether to the lowest tender in each case, what portion was expended otherwise than by public advertisement, tender and contract, and to whom it was paid in each instance. Presented 23rd March, 1910.—*Mr. Armstrong.*
Not printed.

143. Return to an order of the House of Commons, dated 19th January, 1910, showing: 1. How much money has been paid by this government from 1896 to the present time to the firm of Sullivan & Langdon, contractors, of Kingston, or to Mr. Sullivan, contractor, Kingston. 2. What public buildings or other public works that have been let by contract to either of the above firms since 1896, the contract price in each case, and the total amount paid to the said contractors in each case. 3 The total cost of each building or public work in which either of the above mentioned firms was interested. Presented 23rd March, 1910.—*Mr. Edwards*.. .. ..*Not printed.*

144. Return to an order of the House of Commons, dated 19th January, 1910, showing: 1. All amounts which may be deducted from the allowances due officers commanding corps of the active militia to cover deficiencies in clothing, &c., deposited to the credit of the Receiver General of Consolidated Revenue. 2. The amount of money that has been received from officers commanding corps of active militia during the five years ended 31st March, 1909, in payment for clothing issued to such corps, including deductions from allowances to cover repayment to replace deficiencies. Presented 30th March, 1910.—*Mr. Worthington*.. .. ..*Not printed.*

145. Rules of the Supreme Court of Saskatchewan, under the provisions of section 576 of the Criminal Code. Presented 30th March, 1910, by Hon. A. B. Aylesworth.
Not printed.

146. Copy of correspondence between the Canadian government and the government of Great Britain in respect to the purchase by Canada of the cruiser *Rainbow*. Presented 30th March, 1910, by Sir Wilfrid Laurier.. .. .. ..*Printed for sessional papers.*

146*a*. Copy of correspondence between the Canadian government and the government of Great Britain in respect to the purchase of the cruiser *Niobe*. Presented 30th March, 1910, by Sir Wilfrid Laurier . .. .*Printed for sessional papers.*

147. Return to an order of the House of Commons, dated 7th February, 1910, for a copy of all correspondence respecting the Central Park Post Office during the year 1909 and including particularly a copy of: 1. Representations made to the department that by changing the location of the office and establishing a post office at Collingwood East, the interest of the majority of the residents would be best served. 2. The evidence taken at the inquiry following such representations, and the official report upon such evidence. 3. Communications from residents of Central Park and others with respect to the closing of the post office there, and the answer made thereto in accordance with the facts. 4. The information upon which it was determined that the removal of the post office would be a greater convenience. 5. The largely signed petition from patrons

CONTENTS OF VOLUME 19—*Continued.*

of the Central Park Post Office complaining of the management, &c.; and the report of the inspector who investigated the same. Presented 31st March, 1910.—*Mr. Taylor (New Westminster)*.. .. ..*Not printed.*

148. Return to an order of the House of Commons, dated 14th March, 1910, showing, for the last two months, the time of each transmission of mails from Montreal to London, England, and from London, England, to Montreal and showing the date and hour of closing, and date and hour of delivery in each case. Presented 31st March, 1910.—*Mr. Monk*.. .. ..*Not printed*

149. Return to an order of the House of Commons, dated 14th March, 1910, showing the names of the sessional and temporary employees of the House of Commons who were under pay on the 27th January last; and the number of the said employees stated in the estimates of 1909-10. Presented 31st March, 1910.—*Mr. Best.*
Printed for sessional papers.

150. Return to an order of the House of Commons, dated 24th January, 1910, for a copy of all correspondence between Celstin Pregent, of Melocheville, P.Q., either personally or through his attorney, and the Department of Railways and Canals, concerning certain bridges on the Beauharnois canal. Presented 31st March, 1910.—*Mr. Monk.*
Not printed.

151. Return to an order of the House of Commons, dated 14th March, 1910, showing what amount of money has been paid each year to Geo. Walton, Manitoba, by the Interior Department, from January 1st, 1906, to December 31st, 1909; and what monies Mr. Geo. Walton has received since January 1st, 1909, from any other department of the government. Presented 4th April, 1910.—*Mr. Schaffner*.. .. ..*Not printed.*

152. Return to an order of the House of Commons, dated 7th February, 1910, for a copy of all correspondence relating to all coal lands reserved for as well as those acquired by the Bow River Collieries by direct application or assignment. Presented 4th April, 1910.—*Mr. Northrup*.. .. ..*Not printed.*

153. Report of Harry Freeman Alward, Commissioner appointed to investigate into the matter of complaints concerning James Dickson, government valuator, Trent canal, pursuant to Part II, of the Inquiries Act, Revised Statutes of Canada, 1906, held at Peterborough and Hastings, Ontario, March 25th to March 29th, inclusive, 1910; and also a copy of the evidence in relation thereto. Presented 5th April, 1910. by Hon. G. P. Graham.. .. ..*Not printed.*

154. Return to an order of the Senate, dated 14th January, 1910, for a statement comprising, in so many distinct columns, the names, dates and appointment, nature of employment, salary, travelling expenses, and indication of the section where the person was employed, of all persons in the service of the Commission for the construction of the Grand Trunk Pacific Railway between Moncton and Winnipeg. Presented 6th April, 1910.—*Hon. Mr. Bolduc*.. .. ..*Not printed.*

155. Return to an order of the House of Commons, dated 14th February, 1910, for a copy of all pay-sheets, accounts, and vouchers for wages, material and expenditure in connection with work on Skinner's Cove, Boat Harbour, Pictou County, Nova Scotia, in the years 1907, 1908 and 1909. Presented 8th April, 1910.—*Mr. Stanfield*..*Not printed.*

CONTENTS OF VOLUME 19—*Continued.*

155*a*. Return to an order of the House of Commons, dated 14th February, 1910, for a copy of all payments, accounts and vouchers for wages, materials and other expenditures in connection with work on the Toney river, Boat Harbour, Pictou County, Nova Scotia, in the years 1907, 1908 and 1909. Presented 8th April, 1910.—*Mr. Rhodes.*
Not printed.

156. Return to an order of the House of Commons, dated 15th December, 1909, showing: At what places in the several provinces armouries and drill halls have been erected, and when they were erected; the total cost of the site in each case, and when and from whom purchased; the contract price of each building, and to whom and when the contract was awarded; the total cost of each building; in what places armouries and drill halls are being constructed at present, and the cost of the site, from whom and when purchased; the estimated cost of the building in each case, and to whom, when and at what price the contract was awarded, and the names of places other armouries and drill halls are to be built by the government in the near future. Presented 8th April, 1910.—*Mr. Edwards*.. .. .. .

CONTENTS OF VOLUME 19—*Continued.*

163. Return to an address of the Senate, dated 11th March, 1910, for the production of the report of every inquiry made and of all correspondence exchanged during the last five years on the subject of one or more seizures of goods consigned to or the property of the Quebec Rock City Tobacco Company, as well as on the subject of every remission of fines incurred by the said company for infraction of the Inland Revenue laws or regulations. Presented 14th April, 1910—*Hon. Mr. Landry*.. .. ..*Not printed.*

164. Return to an order of the House of Commons, dated 7th February, 1910, showing the number of persons appointed as temporary employees of the civil service in the several departments since the present Civil Service Act came into force, the date of the appointment of each, their names, their salaries while employed as such temporary employees, the department in which such employee was placed, the duration of their employment, whether in one department alone or in case of transfer to another or other department, with total length of time employed, the names of those who in consquence of having passed the Civil Service examination have been employed permanently, the names of those who while temporarily employed failed to pass the required examination and are still employed in the service; the names of those who are or have been employed over the statutory six months as temporary employees, and the reasons for such continued employment in each case. Presented 18th April, 1910.—*Mr. Hughes.*
Not printed.

165. Return to an order of the House of Commons, dated 19th January, 1910, for a copy of all papers, letters, telegrams, documents and correspondence in connection with the establishment of the Experimental Farm near Lethbridge, Alta. Presented 18th April, 1910.—*Mr. Magrath*.. .. ..*Not printed.*

166. Certified copies of reports of the Committee of the Privy Council of 17th Januray, 1908, and of the 14th November, 1908, respecting a homestead entry granted to Mr. Charles D. T. Becher, for the n.e. ¼ of section 20, township 52, range 24, west of the fourth meridian, &c. Presented 18th April, 1910, by Hon. F. Oliver.. .. ..*Not printed.*

167. Return to an order of the Senate, dated 10th February, 1910, of all surveys, plans, reports and other documents connected with the improvement of the Saskatchewan river, with a view to facilitate transportation by water of passengers and freight from the foot of the Rocky Mountains to the city of Winnipeg, Man. Presented 19th April, 1910.—*Hon. Mr. Davis*.. .. ..*Not printed.*

168. Return to an order of the House of Commons, dated 24th November, 1909, for a copy of all correspondence and papers, and any information possessed by the government relating to the formation and work of the Secretariat decided upon by the Imperial Conference of 1907. Presented 20th April, 1910. *Mr. Foster.*
Printed for both distribution and sessional papers.

169. Correspondence between the Clerk of the House and the Department of Justice with reference to the organization of the staff of the House of Commons. Presented 21st April, 1910, by Hon. W. S. Fielding.. .. ..*Not printed.*

170. Certified copy of a report of the Committee of the Privy Council, approved by His Excellency the Governor General on the 15th April, 1910, in respect to chapter 10 of the Statutes of Ontario, 1909, intituled: 'An Act to amend an Act to chapter 19 of the Statutes of Ontario, 1909,' intituled: 'An Act to amend an Act to provide for the transmission of Electrical Power to Municipalities,' to validate certain contracts entered into with the Hydro-Electric Power Commission of Ontario, and for other purposes.' Presented 25th April, 1910, by Hon. A. B. Aylesworth.. .. .. ..*Not printed.*

CONTENTS OF VOLUME 19—*Continued.*

171. Return to an order of the House of Commons, dated 14th March, 1910, for a copy of all papers and correspondence between different persons or companies and the Department of Mines, in reference to a charge of unprofessional conduct made in the *Canadian Mining Journal* of July 1, 1909, against Mr. Fritz Cirkle, a mining engineer, temporarily employed by the Department of Mines in preparing a report on the asbestos mining industry of the province of Quebec. Presented 27th April, 1910.—*Mr. Smith (Nanaimo)*.. .. .. .

CONTENTS OF VOLUME 19—*Continued.*

178. Return to an order of the House of Commons, dated 28th February, 1910, for a copy of all representations made by business or commercial men or citizens of Winnipeg to the department or government since the contemplated action of the government in reference to closing or keeping open the post office to box holders on Sundays, and who made them; and of all orders given by the Postmaster General or his department to the postmasters in reference to this Sunday closing. Presented 2nd May, 1910.—*Mr. Haggart (Winnipeg)*.. .. ..*Not printed.*

178*a*. Supplementary Return to No. 178. Presented 2nd May, 1910.. .. ..*Not printed.*

179. Return to an order of the House of Commons, dated 17th November, 1909, for a copy of all accounts, vouchers, correspondence, reports and other papers, not already brought down in connection with the survey of the St. John River channel between Fredericton and Woodstock, N.B. Presented 2nd May, 1910.—*Mr. Crocket*..*Not printed.*

180. Return to an address of the Senate, dated 17th March, 1910, for all documents, letters, returns, &c., concerning the damming of the river La DéCharge, near Lake St. John, in the district of Chicoutimi; which returns are to the effect of showing whether it would be possible to maintain the level of Lake St. John at a reasonable height in order to ensure serviceable navigation on that lake and its tributaries. Presented 2nd May, 1910.—*Hon. Mr. Choquette*.. .. ..*Not printed.*

181. Return to an address of the House of Commons, dated 14th February, 1910, for a copy of all orders in council, reports, correspondence, documents and papers not already brought down relating to the construction of the Georgian Bay canal, or any portion thereof, relating to the surveys thereof, and all offers, proposals and written negotiations not already brought down, with respect to the construction of the said canal or any portion thereof by any company, corporation or syndicate, or with respect to the guarantee by the government of bonds or debentures for the purpose of raising the necessary capital for the construction of the said canal. Presented 3rd May, 1910.—*Mr. White (Renfrew)*.. .. ..*Not printed.*

182. Return to an address of the House of Commons, dated 17th January, 1910, showing the various commissions appointed for all purposes by the government since July 1896, the person or persons composing the commission and the date of appointment, the purpose for which appointed, the date of completion of the work in each case, and the cost of each under the head (*a*) salary, (*b*) travelling expenses, and (c) printing report, if any; the word 'commissions' to include the missions of ministers, single or associated, going on public account to the countries outside of Canada. Presented 3rd May, 1910.—*Mr. Foster*.. .. ..*Not printed.*

182*a*. Supplementary Return to No. 182. Presented 3rd May, 1910.. .. ..*Not printed.*

183. Return to an order of the House of Commons, dated 28th February, 1910, showing the number of persons in the employ of each department of the government during the year 1909 under the following heads: (*a*) civil service employees at Ottawa; (*b*) civil service employees outside of Ottawa; (c) in stated and regular employ, but not under the Civil Service Act, giving the distinctive service of each group; (*d*) those in temporary or casual employment, giving the distinctive work of each group, and also showing the total amount paid under each head. Presented 3rd May, 1910.—*Hon. Mr. Foster*.. .. ..*Not printed.*

184. Return to an order of the Senate, dated 2nd May, 1910, showing for each of the last ten years the date of the prorogation of parliament and the date on which the bound statutes of the session were distributed. Presented 4th May, 1910.—*Hon. Mr. Power*. *Not printed.*

REPORTS, RETURNS AND STATISTICS

OF THE

INLAND REVENUES

OF THE

DOMINION OF CANADA

FOR THE YEAR ENDED MARCH 31

1909

PART II

INSPECTION OF WEIGHTS AND MEASURES GAS AND ELECTRICITY

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1909

[No. 13—1910.]

REPORT

OF THE

DEPUTY MINISTER OF INLAND REVENUE

ON THE

INSPECTION OF WEIGHTS AND MEASURES, GAS AND ELECTRICITY

To the Honourable
The Minister of Inland Revenue.

SIR,—I have the honour to submit herewith my annual report on the inspection of weights and measures, gas and electricity, with the usual statements in connection therewith, for the Fiscal Year ended March 31, 1909.

1. The total revenue collected during the year for the inspection of weights and measures, was $80,287.05, as against $83,021.32 collected during the twelve months ended March 31, 1908.

2. The total expenditure was $104,255.67 as against $101,492.24 expended during the year ended March 31, 1908.

3. Appendix 'A' gives a summary statement of the receipts and expenditures of each inspection division.

4. In Appendices 'B,' 'C' and 'D' will be found a detailed statement of weights, measures and weighing machines presented for verification, verified and rejected during the year. The number of all descriptions may be summarily stated as follows:

—	Presented.	Verified.	Rejected.	Percentage of Rejections.
Weights, Dominion	69,906	69,607	299	0·43
Measures of capacity, Dominion	105,306	105,252	54	0·05
Lineal measures	7,953	7,818	135	1·73
Balances, equal arms	14,518	14,284	234	1·64
" steelyards	5,430	5,343	87	1·63
" platform scales	38,372	37,259	1,113	2·93
Miscellaneous weights	999	997	2	0·20
" measures of capacity	14,241	14,229	12	0·08
" balances	30,486	30,389	97	0·32

INSPECTION OF GAS.

5. The total revenue collected during the twelve months ended March 31, 1908, for the inspection of gas and gas meters, was $44,032.50, as compared with $48,604.21, collected during the year ended March 31, 1909.

6. The total expenses were $31,014.35 as against $35,515.36 expended during the year ended March 31, 1909.

7. Appendix 'E' gives a summary statement of the receipts and expenditures of each gas inspection district.

8. A statement of the illuminating power and purity of gas inspected during the year will be found in Appendix 'F.'

9. The illuminating power, where inspection has been made, has been as follows :—

Places.	Number of tests made.	Number of times below Standard.	Places.	Number of tests made.	Number of times below Standard.
Barrie	12		St. Catharines	12	
Belleville	23	1	St. Thomas	13	1
Berlin	12		Toronto	105	
Brockville	23		Windsor	18	5
Cobourg	12		Woodstock	12	
Cornwall	12		Montreal	104	
Deseronto	11		Quebec	12	
Guelph	12		Sherbrooke	12	2
Hamilton	26		St. Hyacinthe	12	
Ingersoll	13	4	Fredericton	10	
Kingston	23		Moncton	12	
Listowel	12		St. John, N.B.	25	
London	104	5	Halifax	12	
Napanee	6		Yarmouth	12	
Ottawa	104		Charlottetown	24	5
Owen Sound	12		Winnipeg	101	
Peterborough	24		Nanaimo	7	
Port Hope	12		New Westminster	9	
Sarnia	12		Vancouver	58	
Stratford	11		Victoria	6	

The revenue derived from the inspection of electricity was as follows :—

Fees for inspection of meters, &c		$43,909 25
The expenses of inspection (annual)	$12,817 55	
Expended on standard instruments, &c	5,691 80	
		18,509 35
Leaving a net revenue of		$25,399 90

Since the year 1896-97 the two services of gas and electricity inspection, which are conducted largely by the same staff of officers have reached that point at which they have ceased to be a burden upon the general taxpayer, as shown below:—

Years.	Gas and Electric Light.	
	Revenue.	Expenditure.
	$ cts.	$ cts.
*1899-1900	35,523 50	26,424 48
*1900-01	37,536 57	28,247 20
1901-02	43,663 05	33,328 48
1902-03	49,054 55	36,006 47
1903-04	50,218 75	33,426 15
1904-05	62,561 37	34,774 02
1905-06	76,539 00	38,917 48
1906-07 (nine months)	57,868 18	30,793 84
1907-08	86,552 20	48,831 75
1908-09	92,450 21	54,018 71

* Exclusive of cost of standard instruments.

On July 1, 1909, there will be brought into effect new schedules of fees for the inspection of meters, for gas and electricity, which will tend to decrease the revenue from these sources. If found practicable future reductions may be made which will probably result in more nearly equalizing the revenue and expenditure in connection with these services.

The kindred service of weights and measures inspection, it will be observed, earns about 77 per cent of its actual cost, the expenditure as already stated having been $104,255.67 against a revenue of $80,218.80.

The International Commission on Electric Units and Standards met in London, England, in the month of October last and the International Congress of Applied Electricity met in Marseilles during the same month.

Mr. Ormand Higman, Chief Electrical Engineer, as Canadian representative, attended both meetings and a copy of his report, together with the report of the International Conference, is appended hereto.

The Department has, in the last few years, sent out, for use in educational institutions, over seven hundred sample sets of metric weights and measures. The supply is now exhausted and no additional sets have yet been ordered.

I have the honour to be, sir,
Your obedient servant,

W. J. GERALD,
Deputy Minister.

Inland Revenue Department,
Ottawa, June 18, 1909.

INTERNATIONAL CONFERENCE ON ELECTRICAL UNITS AND STANDARDS, 1908.

W. J. GERALD, Esq.,
Deputy Minister, Inland Revenue,

SIR,—In submitting my report of the International Conference on Electrical Units and Standards, I beg to state that previous to 1904 it had been admitted, for some time, that the realizations of the fundamental electrical units in the various countries were not identical. The difference was especially noticeable in the case of the volt which has been legalized, in some countries in terms of the ampere and ohm in other countries as the E.M.F. of a standard cell. The difference between the two values of the volt was about 8 parts in 10,000. In the case of the ampere and the ohm the differences though smaller were, in general, quite appreciable.

This subject was very fully considered at the International Electrical Congress held in St. Louis in connection with the Louisiana Purchase Exposition in 1904, and the Chamber of Delegates appointed by the various governments represented at this Conference adopted the following report at its third meeting :—

'It appears from papers laid before the International Electrical Congress and from the discussion that there are considerable discrepancies between the laws relating to electrical units, or their interpretations, in the various countries represented, which, in the opinion of the chamber, require consideration with a view to securing practical uniformity.

'Other questions bearing on nomenclature and the determination of units and standards have also been raised on which in the opinion of the chamber it is desirable to have international agreement.

'The Chamber of Delegates consider that these and similar questions could best be dealt with by an international commission representing the governments concerned. Such a commission might, in the first instance, be appointed by those countries in which legislation on electric units has been adopted, and consist of, say, two members from each country.

'Provision should be made for securing the adhesion of other countries prepared to adopt the conclusions of the commission.

'The Chamber of Delegates approves such a plan, and requests its members to bring this report before their respective governments.

'It is hoped that if the recommendation of the Chamber of Delegates be adopted by the Governments represented, the commission may eventually become a permanent one.'

Further, at the fourth and final meeting of the Chamber of Delegates, the following resolution was adopted :—

'That the delegates report the resolution of the Chamber as to electrical units to their respective Governments, and that they be invited to communicate with S. W. Stratton (Bureau of Standards, Washington, D. C.), and Dr. R. T. Glazebrook (National Physical Laboratory, Bushy House, Teddington, Middlesex, England), as to the results of their report, or as to other questions arising out of the resolution.'

On their return from St. Louis the British delegates reported to the Foreign Office, and asked the government to arrange for an International Conference. In March, 1905, the matter was referred to the Board of Trade, who appointed a Committee to report on the matter. In the meantime certain informal correspondence between the heads of the various standardizing laboratories led up to the Reichsanstalt inviting, in June, 1905, the representatives of the laboratories to an informal conference at Charlottenburg.

The proceedings of this Conference were circulated to the delegates at the present Conference by Prof. Warburg. The decisions and resolutions are given in Appendix 1.

In the commencement of 1906 the Board of Trade Committee, after considering the action taken in Charlottenburg, reported that steps should be taken to convoke an International Conference on Electrical Units and Standards. This Committee recommended that the Conference should be held in London during October, 1906.

In April, 1906, the Foreign Office invited various countries to send representatives to the proposed Conference.

As a result of a representation received from the French government in July, 1906, to the affect that a French Conference was engaged on the question of Electrical Units the International Conference was postponed until October, 1907, as it was thought that the decision arrived at by the French Conference might be of material assistance.

In 1907, representations were received from Prof. Mascart and Dr. Warburg suggesting that further delay was desirable. The meeting of the Conference was therefore again postponed.

In June of last year the Foreign Office issued an invitation to all the Foreign governments to take part in an International Conference to be held in October in London and at the same time circulated a memorandum as to the proposals to be laid before the Conference which reads as follows:—

Memorandum as to the proposals to be laid before the Conference on Electrical Units and Standards to be held in London in October, 1908.

The general object of the International Conference on Electrical Units and Standards which is to meet on the invitation of His Majesty's government in London in October, 1908, is to consider and advise as to the steps which should be taken to bring about the agreement in the definition of Electrical Units which form the basis of legislation in different countries, and in the methods of constructing and employing the electrical standards necessary to give effect to these definitions.

It is hoped that the delegates to the Conference may find themselves able to embody their conclusions in draft articles which might be commended to the several Governments represented as a basis for uniform legislation and administration in relation to electrical units and standards.

The fundamental units of electrical measurement are the ohm, the ampere, and the volt. Of these, two are primary units, being independent, and the other secondary or derived. It is generally agreed that the ohm should be accepted as one of the primary units. There is some difference of opinion as to whether the ampere or volt should be the second. This point will be one for the Conference to consider.

Again, the ohm is realized by means of the resistance of a column of mercury of definite dimensions, the ampere by means of the electrolytic deposition of silver and the volt by aid of a standard cell.

If this method of realizing the units be accepted by the Conference, specifications for the ohm and the ampere will call for consideration, while the standard cell must be selected and the method of setting it up prescribed.

In view of the scientific questions raised in connection with each of these matters, including also the choice of the two primary units, it will be suggested at an early meeting of the Conference, should such a course appear to be desirable, that the Conference should appoint a small Technical Committee of experts to discuss the question and report thereon, to the Conference.

The Conference will also be asked to consider the best methods of securing uniformity of administration in the future, and for arriving at a decision on any questions left undecided at the close of the Conference.

It is desirable to have some definite questions before the Conference, and with this object the following propositions embodying conclusions arrived at by the representatives of the various National Standardizing Laboratories which met at the Reichsanstalt in 1906, and which are also generally in accordance with the decision of the Chicago Congress held in 1893, will be brought forward as a basis for discussion.

(1) That the ohm shall be the first primary unit.

(2) That the ampere shall be the second primary unit.
(3) That in consequence the volt shall be treated as a secondary or derived unit.
(4) That the international ohm be defined as the resistance at the temperature of melting ice of a column of mercury of uniform cross section terminated by planes at right angles to its length 106·3 centimetres in length and 14·4521 grammes in mass.
(5) That the international ampere be defined as the unvarying Electrical Current which, when passed through a solution of nitrate of silver in water, deposits silver at the rate of 0·001118 gramme per second.
(6) That the international volt be defined as that electro motive force which when applied steadily between the ends of a conductor of resistance of 1 international ohm produces a current of 1 international ampere.
(7) That the Weston Cadmium Cell be adopted as a convenient standard of electro-motive force, having at a temperature of 17°C an E.M.F. of ——— international volts, but that it is undesirable that the number representing the E.M.F. of this Cell should be the subject of legislation in any country.
(8) That specifications dealing with the methods of setting up mercury standards of resistance, of realizing the ampere by the deposition of silver and of preparing standard cells, be issued with the authority of the Conference, and that for this purpose a Technical Committee be appointed to prepare these specifications.
(9) That the Conference consider and advise as to the best method of securing uniformity with regard to the fundamental electrical standards for the future.

In the Chicago resolutions of 1893 the Volt was declared to be 'the electro-motive force that, steadily applied to a conductor whose resistance is one ohm, will produce a current of one ampere and which is represented sufficiently well for practical use by $\frac{1000}{1434}$ of the electro-motive force between the poles or electrodes of the voltaic cell known as Clark's Cell, at a temperature of 15° centigrade when prepared in accordance with a certain specification'.

The volt in the accompanying report as adopted by the London Conference is in terms of the ohm and ampere and is specified as follows 'the international volt is the electrical pressure which, when steadily applied to a conductor whose resistance is one international ohm will produce a current of one international ampere.' It is further stated that the Weston Normal Cell may be conveniently employed as a standard of electric pressure for the measurement both of E.M.F. and of current, and when set up in accordance with the specification provisionally as having, at a temperature of 20°C. an electro-motive-force or 1·0184 volts. It will thus be seen that the Weston Normal Cell supersedes the Clark cell as a standard of electro-motive-force and this change will necessitate an amendment to the Act respecting the units of electrical measure.

The primary units—the ohm and the ampere remain unchanged. It was intended by the Conference to drop all definitions apart from the ohm, ampere and volt but in view of the strong representations made by the Canadian delegate as to the necessity for defining the commercial unit of supply the Conference reconsidered its determination and defined the watt. As electrical energy on this continent is bought and sold almost entirely in terms of the watt and kilowatt the necessity for an authoritative definition of this unit was perfectly obvious.

As now defined by the Conference the resolution reads: 'The international watt is the energy expended per second, by an unvarying electric current of one international ampere under an electric pressure of one international volt.'

It is recommended that the Electrical Units Act be amended at the next session arliament so as to embody the new definitions of the Conference.

I remain, sir,
Your obedient servant,

ORMOND HIGMAN,
Chief Electrical Engineer

INTERNATIONAL CONFERENCE ON ELECTRICAL UNITS AND STANDARDS, 1908.

REPORT.

The Conference on Electrical Units and Standards for which invitations were issued by the British government, was opened by the President of the Board of Trade, The Right Hon. Winston S. Churchill, M.P., on Monday, 12th October, 1908, at Burlington House, London, S. W.

Delegates were present from twenty-one countries, and also from the following British Dependencies, namely, Australia, Canada, India and the Crown Colonies.

It was decided by the Conference that a vote each should be allowed to Australia, Canada and India, but a vote was not claimed or allowed for the Crown Colonies.

The total number of delegates to the Conference was forty-six, and their names are set out in Schedule A to this report.

The officers of the Conference were :—

President—The Right Hon. Lord Rayleigh, O.M., President of the Royal Society.

Vice-Presidents—Professor S. A. Arrhenius, Dr. M. Egoroff, Dr. Viktor Edler von Lang, M. Lippmann, Dr. S. W. Stratton, Dr. E. Warburg.

Secretaries— Mr. M. J. Collins, Mr. W. Duddell, F.R.S., Mr. C. W. S. Crawley, Mr. F. Smith.

The Conference elected a Technical Committee to draft specifications and to consider any matter which might be referred to the Committee and to report to the Conference.

The Conference and its Technical Committee each held five sittings.

As a result of its deliberation the Conference adopted the resolutions and specifications attached to this report and set out in Schedule B, and requested the Delegates to lay them before their respective governments with a view to obtaining uniformity in the legislation with regard to Electrical Units and Standards.

The Conference recommend the use of the Weston Normal Cell as a convenient means of measuring both electromotive force and current when set up under the conditions specified in Schedule C.

In cases in which it is not desired to set up the Standards provided in the resolutions Schedule B, the Conference recommends the following as working methods for the realisation of the international ohm, the ampere and the volt.

1. For the international ohm —
   The use of copies, constructed of suitable material and of suitable form and verified from time to time, of the international ohm, its multiples and submultiples.
2. For the international ampere—
   (a) The measurement of current by the aid of a current balance standardized by comparison with a silver voltameter ; or
   (b) The use of a Weston Normal Cell whose electromotive force has been determined in terms of the international ohm and international ampere, and of a resistance of known value in international ohms.
3. For the international volt —
   (a) A comparison with the difference of electrical potential between the ends of a coil of resistance of known value in international ohms, when carrying a current of known value in international amperes ; or
   (b) The use of a Weston Normal Cell whose electromotive force has been determined in terms of the international ohm and international ampere.

The duties of specifying more particularly the conditions under which these methods are to be applied has been assigned to the Permanent Commission, and pending its appointment, to the Scientific Committee to be nominated by the President (see Schedule D), who will issue a series of Notes as Appendix to this Report.

The Conference has considered the methods that should be recommended to the governments for securing uniform administration in relation to Electrical Units and Standards, and expresses the opinion that the best method of securing uniformity for the future would be by the establishment of an International Electrical Laboratory with the duties of keeping and maintaining International Electrical Standards. This Laboratory to be equipped entirely independently of any National Laboratory.

The Conference further recommends that action be taken in accordance with the scheme set out in Schedule D.

Signed at London on 21st October, 1908, by the Delegates of their respective Countries.

For the United States of America :
S. W. Stratton,
Henry S. Carhart,
Edward B. Rosa.

For Austria :
Victor Von Lang,
Ludwig Kusminsky.

For Belgium :
P. Clement.

For Brazil :
Leopold J. Weiss.

For Chili :
Victor Eastman.

For Colombia :
Jorge Roa.

For Denmark and Sweden :
Svante Arrhenius.

For Ecuador :
C. Nevares.

For France :
G. Lippmann,
J. Rene Benoit,
T. De Nerville.

For Germany :
E. Wrburg, a
W. Jaeger,
S. Lindeck.

For Great Britain :
Rayleigh,
J. Gavey,
R. T. Glazebrook,
W. A. J. O'Meara,
A. P. Trotter,
J. J. Thomson.

For Guatemala :
Francisco de Arce.

For Hungary :
Harsanyi Desire,
Vater Joisef.

For Italy :
Antonio Roiti.

For Japan :
Osuke Asano,
Shigeru Kondo.

For Mexico :
Alfonso Castello.

For Netherlands :
Dr. H. Haga.

For Paraguay :
Max F. Croskey.

For Russia :
N. Egoroff,
L. Swentorzetzky.

For Spain :
Jose Ma.de Madariaga,
A. Montenegro.

For Switzerland :
Dr. H. F. Weber,
P. Chappuis,
Jean Landry.

For Australia :
C. W. Darley,
Threlfall.

For Canada :
Ormond Higman.

For Crown Colonies :
P. Cardew.

For India :
M. G. Simpson.

In the presence of :—
M. J. Collins,
W. Duddell,
C. W. S. Crawley,
F E. Smith.
Secretaries

SCHEDULE A.

LIST OF COUNTRIES AND DELEGATES.

America (United States).—Dr. S. W. Stratton, Director, Bureau of Standards, Washington.

Dr. Henry S. Carhart, Professor of Physics at the University of Michigan.

Dr. E. B. Rosa, Physicist, Bureau of Standards, Washington.

Austria.—Dr. Viktor Edler von Lang, President of the Commission of Weights and Measures, Vienna.

Dr. Ludwig Kusminsky, Inspector of above Commission.

Belgium.—Professor Éric Gérard, Director of the Montefiore Electro-Technical Institution, and President of the Consultative Commission on Electricity.

Monsieur Clément, Secretary of the Consultative Commission on Electricity.

Brazil.—Mr. L. Weiss, Chef de la Section Technique des Télégraphes, Bresil.

Chili.—Don Victor Eastman, First Secretary to the Legation of Chili, London.

Columbia.—Don Jorge Roa.

Denmark and Sweden.—Professor S. A. Arrhenius, Nobel Institute, Stockholm.

Ecuador.—Senor Don Celso Nevares, Consul General.

France.—Professor Lippmann, Member of the Institute and Professor at the Sorbonne.

M. R. Benoit, Directeur du Bureau International des Poids et Mesures.

M. de Nerville, Ingenieur en chef des Télégraphes.

Germany.—Professor Warburg, President of the Imperial Physico-Technical Institute.

Professor Jaeger, Member of the Imperial Physico-Technical Institute.

Professor Lindeck, Member of the Imperial Physico-Technical Institute.

Great Britain.—The Right Hon. Lord Rayleigh, President of the Royal Society.

Professor J. J. Thomson, F.R.S., Cambridge.

Sir John Gavey, C.B.

Dr. R. T. Glazebrook, F.R.S., Director of the National Physical Laboratory.

Major W. A. J. O'Meara, C.M.G., Engineer-in-Chief, General Post Office.

Mr. A. P. Trotter, Electrical Adviser to the Board of Trade.

Guatemala.—Dr. Francisco de Arce, Diplomatic Representative, London and Paris.

Hungary.—Joseph Vater, Directeur Technique des Postes et des Télégraphes, Budapest.

Dr. Desiré Harsanyi, Director of the Hungarian Royal Commission for Weights and Measures.

Italy.—Professor Antonio Roiti, of Florence.

Japan.—Dr. Osuke Asano, Doctor of Engineering, Official Expert of the Department of Communications, Tokyo.

Mr. Shigeru Kondo, Official Expert of the Department of Communication, Tokyo.

Mexico.—Don Alfonso Castello.

Don José Maria Perez.

Netherlands.—Dr. Haga, Professor at the University of Groningen.

Paraguay.—M. Maximo Croskey.

Russia.—Dr. N. Egoroff, D.Sc., Director of the General Chamber of Weights and Measures.

Col. L. Swentorzetzky, Ingénieur Militaire, Prof. de l'Académie Militaire Nicolas des Ingénieurs, St. Petersburg.

Spain.—Don José Maria Madariaga, Professor of Electricity and Physics at the School of Mines, Madrid.

Don A. Montenegro, Ingénieur Professeur du laboratoire de l'Ecole de Mines, Madrid.

Switzerland.—Dr. Fr. Weber, Professor at the Swiss Polytechnic School at Zurich

Dr. Pierre Chappuis, Membre Honoraire du Bureau international des Poids et Mesures.

Dr. J. Landry, Professor of Industrial Electricity in the University, Lausanne.

British Colonies : Australia.—Mr. Cecil W. Darley, I.S.O., Late Inspecting and Consulting Engineer, New South Wales Government.

Professor Therlfall, M.A., F.R.S.

Canada.—Mr. Ormond Higman, Chief Electrical Engineer, Electric Standards Laboratory, Ottawa.

Crown Colonies.—Major P. Cardew, Electrical Adviser.

India.—Mr. M. G. Simpson, Electrician of the Indian Telegraph Department.

Secretaries :

Mr. M. J. Collins.
Mr. W. Duddell, F.R.S.
Mr. C. W. S. Crawley.
Mr. F. E. Smith.

SCHEDULE B.

RESOLUTIONS.

The Conference agrees that as heretofore the magnitudes of the fundamental electric units shall be determined on the electro-magnetic system of measurement with reference to the centimetre as the unit of length, the gramme as the unit of mass and the second as the unit of time.

These fundamental units are (1) the ohm, the unit of electric resistance which has the value of 1,000,000,000 in terms of the centimetre and second ; (2) the ampere, the unit of electric current which has the value of one-tenth (0·1) in terms of the centimetre, gramme, and second ; (3) the volt, the unit of electromotive force which has the value 100,000,000 in terms of the centimetre, the gramme, and the second ; (4) the watt, the unit of power which has the value 10,000,000 in terms of the centimetre, the gramme, and the second.

II. As a system of units representing the above and sufficiently near to them to be adopted for the purpose of electrical measurements and as a basis for legislation, the Conference recommends the adoption of the international ohm, the international ampere, and the international volt defined according to the following definitions.

III. The ohm is the first primary unit.

IV. The international ohm is defined as the resistance of a specified column of mercury.

V. The international ohm is the resistance offered to an unvarying electric current by a column of mercury at the temperature of melting ice, 14·4521 grammes in mass, of a constant cross sectional area and of a length of 106·300 centimetres.

To determine the resistance of a column of mercury in terms of the international ohm, the procedure to be followed shall be that set out in Specification I. attached to these resolutions.

VI. The ampere is the second primary unit.

VII. The international ampere is the unvarying electric current which, when passed through a solution of nitrate of silver in water, in accordance with the Specification II attached to these resolutions, deposits silver at the rate of 0·00111800 of a gramme per second.

VIII. The international volt is the electrical pressure which, when steadily applied to a conductor whose resistance is one international ohm, will produce a current of one international ampere.

IX. The international watt is the energy expended per second by an unvarying electric current of one international ampere under an electric pressure of one international volt.

Specification I.

Specification relating to Mercury Standards of resistance.

The glass tubes used for mercury standards of resistance must be made of a glass such that the dimensions may remain as constant as possible. The tubes must be well annealed and straight. The bore must be as nearly as possible uniform and circular, and the area of cross-section of the bore must be approximately one square millimetre. The mercury must have a resistance of approximately one ohm.

Each of the tubes must be accurately calibrated. The correction to be applied to allow for the area of the cross-section of the bore not being exactly the same at all parts of the tube must not exceed 5 parts in 10,000.

The mercury filling the tube must be considered as bounded by plane surfaces placed in contact with the ends of the tube.

The length of the axis of the tube, the mass of mercury the tube contains, and the electrical resistance of the mercury are to be determined at a temperature as near to 0°C. as possible. The measurements are to be corrected to 0°C.

For the purpose of the electrical measurements, end vessels carrying connections for the current and potential terminals are to be fitted on to the tube. These end vessels are to be spherical in shape (of a diameter of approximately four centimetres) and should have cylindrical pieces attached to make connections with the tubes. The outside edge of each end of the tube is to be coincident with the inner surface of the corresponding spherical end vessel. The leads which make contact with the mercury are to be of thin platinum wire fused into glass. The point of entry of the current lead and the end of the tube are to be at opposite ends of a diameter of the bulb; the potential lead is to be midway between these two points. All the leads must be so thin that no error in the resistance is introduced through conduction of heat to the mercury. The filling of the tube with mercury for the purpose of the resistance measurements must be carried out under the same conditions as the filling for the determination of the mass.

The resistance which has to be added to the resistance of the tube to allow for the effect of the end vessels is to be calculated by the formula.

$$A = \frac{0{\cdot}80}{1063\pi}\left(\frac{1}{r_1}+\frac{1}{r_2}\right) \text{ ohm.}$$

where r_1 and r_2 are the radii in millimetres of the end sections of the bore of the tube.

The mean of the calculated resistances of at least five tubes shall be taken to determine the value of the unit of resistance.

For the purpose of the comparison of resistances with a mercury tube the measurements shall be made with at least three separate fillings of the tube.

Specification II.

Specification relating to the deposition of Silver.

The electrolyte shall consist of a solution of from 15 to 20 parts by weight of silver nitrate in 100 parts of distilled water. The solution must only be used once, and only for so long that no more than 30 per cent of the silver in the solution is deposited.

The anode shall be of silver, and the kathode of platinum. The current density at the anode shall not exceed $\frac{1}{5}$ ampere per square centimetre and at the kathode $\frac{1}{30}$ ampere per square centimetre.

Not less than 100 cubic centimetres of electrolyte shall be used in a voltameter.

Care must be taken that no particles which may become mechanically detached from the anode shall reach the kathode.

Before weighing, any traces of solution adhering to the kathode must be removed, and the kathode dried.

SCHEDULE C.

WESTON NORMAL CELL.

The Weston Normal Cell may be conveniently employed as a standard of electric pressure for the measurement both of E.M.F. and of current, and when set up in accordance with the following Specification, may be taken, provisionally,* as having, at a temperature of 20°C., an E.M F. of 1·0184 volts.

SPECIFICATION RELATING TO THE WESTON NORMAL CELL.

The Weston Normal Cell is a voltaic cell which has a saturated aqueous solution of cadmium sulphate ($CdSO_4 \frac{8}{3} H_2O$) as its electrolyte.

The electrolyte must be neutral to Congo Red.

The positive electrode of the cell is mercury.

The negative electrode of the cell is cadmium amalgam consisting of 12·5 parts by weight of cadmium in 100 parts of amalgam.

The depolarizer, which is placed in contact with the positive electrode, is a paste made by mixing mercurous sulphate with powdered crystals of cadmium sulphate and a saturated aqueous solution of cadmium sulphate.

The different methods of preparing the mercurous sulphate paste are described in the notes.† One of the methods there specified must be carried out.

For setting up the cell, the H form is the most suitable. The leads passing through the glass to the electrodes must be of platinum wire, which must not be allowed to come into contact with the electrolyte. The amalgam is placed in one limb, the mercury in the other.

The depolarizer is placed above the mercury and a layer of cadmium sulphate crystals is introduced into each limb. The entire cell is filled with a saturated solution of cadmium sulphate and then hermetically sealed.

The following formula is recommended for the E.M.F. of the cell in terms of the temperature between the limits 0°C and 40°C.

$$E^t = E_{20} - 0{\cdot}0000406\ (t-20^\circ) - 0{\cdot}00000095\ (t-20^\circ)^2 + 0{\cdot}00000001\ (t-20)^3$$

SCHEDULE D.

1. The Conference recommends that the various governments interested establish a permanent international commission for electrical standards.

2. Pending the appointment of the permanent international commission the Conference recommends [1] that the president, Lord Rayleigh, nominate for appointment by the Conference a scientific committee of fifteen to advise as to the organization of the permanent commission, to formulate a plan for and to direct such work as may be necessary in connection with the maintenance of standards, fixing of values [2], intercomparision of standards and to complete the work of the Conference [3]. Vacancies on the committee to be filled by co-optation.

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* See duties of the Scientific Committee, Schedule D.

† Notes on methods pursued at various standardizing laboratories will be issued by the Scientific Committee or the Permanent Commission, as an Appendix to this Report.

[1] In accordance with the above, Lord Rayleigh has nominated the following committee, which has been approved by the Conference, viz.:—

Dr. Osuke Azano,
M. R. Benoit,
Dr. M. N. Egoroff,
Prof. Eric Gérard,
Dr. S. T. Glazebrook,
Dr. H. Haga,
D. L. Kusminsky,
Prof. Lindeck,
Prof. G. Lippman,
Prof. A. Roiti,
Dr. E. R. Rosa.
Dr. S. W. Stratton,
Mr. A. P. Trotter,
Prof. E. Warburg,
Prof. Fr. Weber.

[2] This will include the reconsideration from time to time of the E. M. F. of the Weston Normal Cell.

[3] With this object the committee are authorized to issue as an Appendix to the Report of the Conference notes detailing the methods which have been adopted in the standardizing laboratories of the various countries to realize the international ohm and the international ampere, and to set up the Weston Normal Cell.

3. The laboratories equipped with facilities for precise electrical measurements and investigations should be asked to co-operate with this committee and to carry out, if possible, such work as it may desire.

4. The committee should take the proper steps forthwith for establishing the permanent commission, and are empowered to arrange for the meeting of the next conference on electrical units and standards, and the time and place of such meeting should this action appear to them to be desirable.

5. The committee or the permanent international commission shall consider the question of enlarging the functions of the international commission on weights and measures with a view to determining if it is possible or desirable to combine future conferences on electrical units and standards with the international commission on weights and measures, in place of holding in the future conferences on electrical units and standards. At the same time it is the opinion of the conference that the permanent commission should be retained as a distinct body, which should meet at different places in succession.

ELECTRICAL STANDARDS LABORATORY,
INLAND REVENUE DEPARTMENT,
OTTAWA, August 19, 1909.

W. J. GERALD, Esq., I.S.O.,
Deputy Minister.

SIR,—As the delegate of the Canadian Government, I attended the International Congress of Applied Electricity held in September, 1908, at Marseilles, France.

The Congress opened on Monday, the 14th of September under the presidency of M. Maurice Lévy, Inspector General of Roads and Bridges, and Professor of the College of France.

The work of the Congress was carried on under nine divisions or sections as follows :—

First Section.—Comparison of French legislation on electricity with that of foreign countries and the consequences of new legislation on previous authorizations and concessions.

Second Section.—Construction and protection of aerial conductors and underground cables.

Third Section.—Technical and commercial exploitation. Comparison of the different methods of transporting electrical energy. The use of accumulators in electrical distributions. Supervision of the lines, security of the person and regulation.

Fourth Section.—Lighting and domestic applications. Processes of electric lighting. Specifications and photometry of electric lamps. Electricity as fuel.

Fifth Section.—Industrial applications of electricity for mining, traction and agriculture. Comparison of the different systems of traction. Electrification of steam railways. The social effect of the uses of electricity in the home.

Sixth Section.—Electro-chemistry and electro-metallurgy. The fixation of atmospheric nitrogen. The present state of electro metallurgy. The electro-metallurgy of brass. The present state of electro-chemistry.

Seventh Section.—Telegraphy and telephony. Wireless telegraphy. Wireless telephony. The present state of submarine telephony. Application of currents of high frequency for the transmission of signals on industrial lines.

Eighth Section.—Teaching and measurements. Electro-technical schools. The education of the engineer and electrician. Instruments of measurement. Organization of an industrial laboratory.

Ninth Section.—Application of electricity to hygiene and medicine. Electrical processes for the sterilization of air and water. Electrical measuring instruments in radio-theraphy. The destructive action of electricity on the tissues. The employment of Crookes tubes.

The range covered, as here outlined, is extremely large and embraces practically every branch of electrical engineering.

The countries represented at the congress were:—Austria, Belgium, Canada France, Holland, Italy, Monaco, Roumania, Russia, Spain, Sweden, Switzerland and the United States of America. There were 1,400 members present at the Congress.

The deliberations of the Congress have just been published in three large volumes, the first two of which are taken up with 'Rapports Préliminaires,' consisting practically of papers prepared by various authorities on which the discussions at the sectional meetings were based. The third volume contains the actual discussions which took place before the sections. It is impossible to give any adequate idea of the information contained in these volumes, but they will undoubtedly form an excellent work of reference in future as to the condition of the electrical industry in 1908.

I remain, sir, your obedient servant,

ORMOND HIGMAN,

Chief Electrical Engineer.

APPENDIX A

STATEMENT of Weights and Measures Expenditures and Revenues for the Fiscal Year ended March 31, 1909.

Inspection Divisions.	Inspectors and Assistants.	Expenditures.						Revenues.
		Salaries.	Special Assistance.	Rent.	Travelling Expenses.	Sundries.	Total.	
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Belleville	Johnson, Wm Slattery, Thos. Johnston, C. W. Gallagher, Thos Kylie, Richard Howson, G. H.	4,778 15	.....	372 50	1,088 40	362 56	6,601 61	3,036 30
Hamilton	Freed, A. T Marentette, A. Laidman, R. H Wheatley, A. E. Robins, S. W. Clegg, Joseph	6,549 84	.....		1,595 75	89 35	8,234 94	10,325 35
Ottawa	Macdonald, J. A. Winsor, John Breen, J. Findlay, R. Hodgins, H. A Church, G. C.	3,799 80	1,100 00		971 87	135 42	6,007 09	3,415 29
Toronto	Kelly, D. McConvey, J. J Wright, Robt Milligan, R. J. Murdock Jas. Smith, J. C. Cruikshank, J. L. Lyons, Archibald	6,062 28	.....	.....	2,222 36	156 33	8,440 97	11,129 71
Windsor	Hayward, W. J. Coughlin, D. Hughes, R. A Thomas, J. S. Liddle, David Butler, F. H.	5,599 96	.....	.....	1,669 80	219 24	7,489 00	8,904 35
	Ontario...	26,790 03	1,100 00	372 50	7,548 18	962 90	36,773 61	36,811 00

APPENDIX A—*Continued.*

STATEMENT of Weights and Measures Expenditures and Revenues for the Fiscal Year ended March 31, 1909—*Continued.*

Inspection Divisions.	Inspectors and Assistants.	Expenditures.						Revenues.
		Salaries.	Special Assistance.	Rent.	Travelling Expenses.	Sundries.	Total.	
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Montreal. . .	Chalus, J. O.							
	Archambault, J. E.							
	Daoust, J. A.							
	Hébert, J. A. P.							
	Boudet, E.	7,138 10	600 00	1,000 00	1,916 89	201 98	10,856 97	13,889 08
	Beaulac, J. H.							
	Hall, H. C.							
	Wilson, J. C.							
	Galipeau, J. B. N.							
	MacBeth, W.							
Quebec.	Roy, Chs. E.							
	LeBel, J. A. W.							
	Guay, Alphonse							
	Petit, J. B							
	Préfontaine, F. H.	6,995 84	595 00	300 00	2,011 62	363 35	10,265 81	4,996 30
	Knowles, Chs.							
	Bourget, L. J.							
	Bugeaud, J. F.							
	Caldwell, A. B.							
	Ganvin, B.							
St. Hyacinthe.	Morin, J. P.							
	Tomlinson, W. M.	3,449 88	374 94	.....	1,276 07	138 81	5,239 70	3,509 05
	Thérien, J. F.							
	Dessert, Victor							
Three Rivers.	Gravel, A. I.	1,699 92	.....	.....	108 30	67 43	1,875 65	288 10
	Bolduc, E.							
	Quebec.	19,283 74	1,569 94	1,300 00	5,312 88	771 57	28,238 13	22,682 53
St. John, N.B.	Barry, Jas.							
	Leblanc, F. X.	3,206 85	.....	.....	849 97	60 29	4,117 11	3,324 26
	Bernier, J. A.							
	White, H. E.							
Cape Breton..	Laurence, G. C.	950 00	.....	50 00	428 32	4 90	1,433 22	907 40
Halifax.	Frame, A.							
	Waugh, R. J.	1,749 84	799 92	375 00	503 80	126 46	3,555 02	1,154 63
	Sargent, F. H.							
Pictou..	Dustan, W. M.	1,799 92	.....	.....	185 71	81 94	2,067 57	568 48
	Chisholm, J. J.							
	Nova Scotia.	4,499 76	799 92	425 00	1,117 83	213 30	7,055 81	2,630 51
Charlottetown P.E.I.	Davy, E.	1,720 06	.....	.....	247 59	95 65	2,063 30	616 60
	Hughes, Henry							
Winnipeg, M..	Magness, R.							
	Mager, Jos. G.							
	Gilby, W. F.	4,349 88	.....	.....	2,005 33	187 27	6,542 48	7,953 25
	McKay, R.							
	Spicer, Harry							
	Thompson, J. C.							

APPENDIX A—*Concluded.*

STATEMENT of Weights and Measures Expenditures and Revenues for the Fiscal Year ended March 31, 1909—*Concluded.*

Inspection Divisions.	Inspectors and Assistants.	Expenditures.						Revenues.
		Salaries.	Special Assistance.	Rent.	Travelling Expenses.	Sundries.	Total.	
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Calgary, Alta	Costello, J. W. McDonald, A. W.	1,849 96	5 00	3 00	1,313 49	111 96	3,283 41	2,592 15
Nelson	Parker, Thos.	1,100 00			1,078 60	62 15	2,240 75	1,229 55
Vancouver	Marshall, R. Findley, H. Shaw, John Harris, W. H. Dutton, A. H.	2,441 58	1,224 97	530 00	243 05	554 70	4,994 30	2,403 20
	British Columbia	3,541 58	1,224 97	530 00	1,321 65	616 85	7,235 05	2,632 75
Dawson, Y.T.	Macdonald, J. F.	1,000 00			98 25	11 25	1,109 50	44 00

RECAPITULATION.

—	Expenditures.						Revenues.
	Salaries.	Special Assistance.	Rent.	Travelling Expenses.	Sundries.	Total.	
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ontario	26,790 03	1,100 00	372 50	7,548 18	962 90	36,773 61	36,811 00
Quebec	19,283 74	1,569 94	1,300 00	5,312 88	771 57	28,238,13	22,682 53
New Brunswick	3,206 85			849 97	60 29	4,117 11	3,324 26
Nova Scotia	4,499 70	799 92	425 00	1,117 83	213 30	7,055 81	2,630 51
Prince Edward Island	1,720 06			247 59	95 65	2,063 30	616 60
Manitoba	4,349 88			2,005 33	187 27	6,542 48	7,953 25
Alberta	1,849 96	5 00	3 00	1,313 49	111 96	3,283 41	2,592 15
British Columbia	3,541 58	1,224 97	530 00	1,321 65	616 85	7,235 05	3,632 75
Yukon	1,000 00			98 25	11 25	1,109 50	44 00
Chief inspector	1,125 00	199 45		503 95	66 69	1,889 09	
General contingencies					3,586 26	3,586 26	
Metric system					33 77	33 77	
Printing					547 72	547 72	
Stationery					471 62	471 62	
Lithographing					672 85	672 85	
Provisional allowance					425 66	425 66	
International Bureau of Weights and Measures					210 30	210 30	
Grand totals	67,366 86	4,899 28	2,630 50	20,319 12	9,039 91	104,255 67	80,287 05

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

W. J. GERALD,
Deputy Minister.

9-10 EDWARD VII., A. 1910

APPENDIX

RETURN of Weights and Measures Inspected during the Fiscal Year ended March 31, each Division, for each Province,

INSPECTION DIVISIONS.	WEIGHTS.									MEASURES OF CAPACITY.					
	Dominion.			Troy and Decimal.			Miscellaneous.			Dominion.			Miscellaneous.		
	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.
Belleville	2,062	2,063	...	...	...	..	5	5	...	2,680	2,680	..	53	53	..
Hamilton	13,724	13,703	21	...	...	..	4	4	...	5,128	5,123	5	363	354	9
Ottawa	5,977	5,958	19	...	...	..	...	...	...	1,750	1,735	15	81	81	..
Toronto	9,565	9,552	13	...	...	..	...	...	..	17,300	17,300	..	2,870	2,870	..
Windsor	3,471	3,471	...	26	26	..	...	...	...	19,792	19,792	..	131	131	..
Ontario	34,800	34,747	53	26	26	..	9	9	...	46,650	46,630	20	3,498	3,489	9
Montreal	11,497	11,432	65	138	138	..	77	77	...	30,499	30,496	3	7,379	7,379	..
Quebec	7,860	7,687	173	...	...	..	863	861	2	8,090	8,066	24	138	138	..
St. Hyacinthe	3,348	3,348	...	...	...	..	...	...	...	4,454	4,451	3	142	142	..
Three Rivers	543	543	...	...	...	..	...	...	...	477	477	..	4	3	1
Quebec	23,248	23,010	238	138	138	..	940	938	2	43,520	43,490	30	7,663	7,662	1
St. John, N.B	3,096	3,095	1	...	...	..	4	4	...	6,293	6,292	1	2,279	2,279	..
Cape Breton	487	482	5	...	...	..	...	...	...	363	360	3	48	47	1
Halifax	1,362	1,362	...	...	...	..	16	16	...	693	693	..	233	233	..
Pictou	347	347	...	...	...	..	1	1	...	645	645	..	45	45	..
Nova Scotia	2,196	2,191	5	...	...	..	17	17	...	1,701	1,698	3	326	325	1
Charlottetown, P.E.I.	646	646	...	20	20	..	...	...	...	178	178	..	42	42	..
Winnipeg, Man	3,053	3,051	2	40	40	..	...	...	...	6,007	6,007	..	419	418	1
Calgary, Alta	829	829	...	...	...	..	1	1	...	613	613	..	1	1	..
Nelson	520	520	...	...	...	..	...	...	...	305	305	..	4	4	..
Vancouver	1,511	1,511	...	...	...	..	19	19	...	39	39	..	9	9	..
British Columbia	2,031	2,031	...	...	...	..	19	19	...	341	344	..	13	13	..
Dawson, Yukon	7	7	...	...	...	..	9	9	...	...	...	..	...	...	..
Grand totals	69,906	69,607	299	224	224	..	999	997	2	105,306	105,252	54	14,241	14,229	12

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

SESSIONAL PAPER No. 13

B

1909, showing the Total Number brought for Verification, Verified and Rejected for and for the whole Dominion.

Measures of Length.			Balances, &c.											
			Equal Armed.			Steelyards.			Platform Scales, Weigh Bridges, &c.			Miscellaneous.		
Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.	Brought for Verification.	Verified.	Rejected.
152	152	....	367	367	....	78	78	....	1,367	1,367	....	495	495	....
893	804	89	3,262	3,141	121	2,589	2,558	31	6,253	5,785	468	3,289	3,282	7
425	425	....	1,063	1,034	29	46	45	1	2,356	2,286	70	652	623	29
1,336	1,336	....	1,969	1,933	36	503	477	26	3,193	3,077	116	7,613	7,586	27
622	622	....	690	682	8	203	200	3	4,230	4,163	67	2,467	2,466	1
3,428	3,339	89	7,351	7,157	194	3,419	3,358	61	17,399	16,678	721	14,516	14,452	64
2,319	2,319	....	2,546	2,527	19	1,041	1,039	2	5,876	5,758	118	7,116	7,095	21
995	950	45	1,273	1,261	12	279	264	15	2,391	2,334	57	419	413	6
410	410	....	785	782	3	186	184	2	2,286	2,219	67	148	148	....
1	1	....	84	84	....	2	2	....	205	203	2	12	11	1
3,725	3,680	45	4,688	4,654	34	1,508	1,489	19	10,758	10,514	244	7,695	7,667	28
88	88	....	657	656	1	32	32	....	1,763	1,756	7	774	774	....
121	120	1	136	134	2	67	67	....	310	307	3	118	118	....
26	26	....	317	317	....	51	51	....	678	673	5	194	194	....
45	45	....	80	80	....	9	9	....	212	208	4	62	62	....
192	191	1	533	531	2	127	127	....	1,200	1,188	12	374	374	....
3	3	....	143	143	....	20	20	....	446	446	....	63	63	....
318	318	....	543	540	3	105	98	7	3,579	3,454	125	5,377	5,372	5
85	85	....	159	159	....	33	33	....	1,324	1,320	4	283	283	....
114	114	....	95	95	....	46	46	....	539	539	....	171	171	....
....	....	....	349	349	....	138	138	....	1,334	1,334	....	1,229	1,229	....
114	114	....	444	444	....	184	184	....	1,873	1,873	....	1,400	1,400	....
....	....	....	....	....	....	2	2	....	30	30	....	4	4	....
7,953	7,818	135	14,518	14,284	234	5,430	5,343	87	38,372	37,259	1,113	30,486	30,389	97

W. J. GERALD,
Deputy Minister.

9-10 EDWARD VII., A. 1910

APPENDIX

RETURN showing the number of Dominion Weights and Lineal Measures of each Fiscal Year ended

INSPECTION DIVISIONS.	DOMINION													
	Avoir													
	60 lbs.	50 lbs.	30 lbs.	20 lbs.	10 lbs.	7 lbs.	5 lbs.	4 lbs.	3 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.
Belleville	....	1	...	...	16	6	58	128	172	407	455	238	283	126
Hamilton	...	2,194	...	2	4	4	243	113	2,314	3,517	3,209	491	424	500
Ottawa	....	...	...	...	1	8	81	80	212	378	506	759	734	723
Toronto	....	24	...	...	345	6	937	925	715	2,339	1,780	571	511	469
Windsor	..	.....	...	...	10	2	75	129	342	749	711	334	321	299
Ontario	....	2,219	...	2	376	26	1,394	1,375	3,755	7,390	6,661	2,393	2,273	2,117
Montreal	40	239	2	3	81	43	548	618	842	2,236	2,104	1,230	1,115	1,005
Quebec	2	48	12	16	99	136	426	687	646	1,119	1,082	1,011	967	811
St. Hyacinthe	...	.....	...	2	3	3	216	166	439	693	634	381	345	236
Three Rivers	....	.....	...	...	4	1	51	16	83	93	89	67	61	49
Quebec	42	287	14	21	187	183	1,241	1,487	2,010	4,141	3,909	2,689	2,488	2,101
St. John, N.B.	8	20	1	5	12	24	143	180	379	742	664	308	235	192
Cape Breton	....	....	...	...	8	....	46	39	124	131	86	47	5	1
Halifax	....	35	...	...	2	10	36	76	147	393	308	121	79	68
Pictou	....	.....	...	...	...	...	13	13	46	95	84	23	18	18
Nova Scotia	.. .	35	...	...	10	10	95	128	317	619	478	191	102	87
Charlottetown, P.E.I.	....	.....	...	...	...	...	17	35	75	204	143	52	36	30
Winnipeg, Man.	....	14	2	4	22	25	79	179	199	742	622	191	171	177
Calgary, Alta.	60	.....	...	...	2	5	5	36	27	193	160	63	61	61
Nelson	....	. ..	...	...	1	1	6	17	40	104	97	51	46	44
Vancouver.	....	50	...	...	4	5	18	68	75	461	375	110	84	81
British Columbia.	....	50	...	...	5	6	24	85	115	565	472	161	130	125
Dawson, Yukon	....	.....	...	...	...	...	1	....	.....	3	3	.....	.....	.....
Grand totals	110	2,625	17	32	614	279	2,999	3,505	6,877	14,599	13,112	6,048	5,496	4,890

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

SESSIONAL PAPER No. 13

C

Denomination presented for Verification in each Inspection Division during the March 31, 1909.

Weights.							Troy and Decimal Weights.	Miscellaneous Weights.	Lineal Measures.									Miscellaneous Measures.
dupois.																		
1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Number.			6 feet.	5 feet.	1 yard.	½ yard.	2 feet.	1 foot.	½ foot.	100 feet chains.	66 feet chains.	Tape or riband.	Total Number.	
99	46	22	5	1	...	2,063	...	5	.....	.....	152	...	...	...	...	...	...	...	.....	...
354	247	81	12	15	...	13,724	.	4	..	..	893	...	...	...	...	...	...	...	.....	.....
689	750	1,046	7	1	2	5,977	.	.....	.....	.....	425	...	...	...	...	...	...	...	.....	.....
435	244	133	59	72	...	9,565		...	.....	.....	1,336	...	...	...	...	...	...	...	.....	...
261	153	71	10	3	1	3,471	26	.	.....	.....	622	...	...	...	...	...	...	...	.....	.....
1,838	1,440	1,353	93	92	3	31,800	26	9	..	....	3,428	...	...	...	...	...	...	...	.....	.....
725	356	136	73	98	3	11,497	138	77	.....	.....	2,319	...	...	...	...	...	...	...	.....	..
597	149	35	9	7	1	7,860	...	863	....	..	995	...	...	...	...	...	...	...	.....	..
165	49	11	5	..	.	3,348	.		.....	.....	410	...	...	...	...	...	...	...	.....	.....
22	7	...	....	..	..	543	...	...	.....	.....	1	...	...	...	...	...	...	...	.....	.....
1,509	561	182	87	105	4	23,248	138	940	....	..	3,725	...	...	...	...	...	...	...	.....	.....
119	40	17	4	2	1	3,096	....	4	..	..	88	...	...	...	...	...	...	...	.....	....
....	...	..	.....	.....	.....	487	...	.....	.....	.....	121	...	...	...	...	...	...	...	.....	.....
63	18	5	1	.....	.....	1,362	.....	16	....	...	26	...	...	...	...	...	...	...	.....	.....
17	11	5	2	2	....	347	....	1	.....	.....	45	...	...	...	...	...	...	...	.....	.....
80	29	10	3	2	....	2,196	.....	17	.....	.....	192	...	...	...	...	...	...	...	....	.....
26	16	9	3	..	....	646	20	....	..	....	3	...	...	...	...	...	...	...	...	.....
173	166	125	75	91	2	3,053	40	.	..	....	318	...	...	...	...	...	...	...	.....	...
60	50	43	3	.....	...	829	.....	1	....	...	85	...	...	...	...	...	...	...	.....	.....
39	34	26	12	2	...	520	.....	.....	.....	.....	114	...	...	...	...	...	...	...	.....	.....
66	51	35	26	2	....	1,511	...	19	....	.....	.....	...	...	...	...	...	...	...	.....	.....
105	85	61	38	4	...	2,031	.....	19	..	....	114	...	...	...	...	...	...	...	.....	...
. ....	....	.....	.....	.....	....	7	...	9	....	.....	.....	...	...	...	...	...	...	...	.....	.....
3,910	2,381	1,800	306	296	10	69,906	224	999	....	....	7,953	...	...	...	...	...	...	...	.....	....

W. J. GERALD,
Deputy Minister.

9-10 EDWARD VII., A. 1910

APPENDIX

RETURN showing the number of Dominion Weights and Lineal Measures of Year ended March 31,

INSPECTION DIVISIONS.	DOMINION Avoir													
	60 lbs.	50 lbs.	30 lbs.	20 lbs.	10 lbs.	7 lbs.	5 lbs.	4 lbs.	3 lbs.	2 lbs.	1 lb	8 ozs.	4 ozs.	2 ozs.
Belleville	. .	1	...	...	16	6	58	128	172	407	455	238	283	126
Hamilton	....	2,194	..	2	4	4	243	109	2,314	3,509	3,207	487	422	500
Ottawa	....	...	...	...	1	7	78	76	206	373	506	759	734	723
Toronto	....	24	...	...	345	6	935	924	715	2,336	1,777	570	510	468
Windsor	....	...	...	...	10	2	75	129	342	749	711	334	321	299
Ontario	....	2,219	...	2	376	25	1,389	1,366	3,749	7,374	6,656	2,388	2,270	2,116
Montreal	40	239	2	3	81	41	545	613	834	2,226	2,092	1,218	1,108	1,000
Quebec	2	48	12	16	98	136	420	666	627	1,084	1,053	990	949	796
St. Hyacinthe	....	...	...	2	3	3	216	166	439	693	634	381	345	236
Three Rivers	....	...	...	...	4	1	51	16	83	93	89	67	61	49
Quebec	42	287	14	21	186	181	1,232	1,461	1,983	4,096	3,868	2,656	2,463	2,081
St. John, N.B.	8	20	1	5	12	24	143	180	378	742	664	308	235	192
Cape Breton	....	...	...	...	8	....	46	39	124	131	84	44	5	1
Halifax	....	35	...	...	2	10	36	76	147	393	308	121	79	68
Pictou	....	...	...	...	....	....	13	13	46	95	84	23	18	18
Nova Scotia	....	35	...	...	10	10	95	128	317	619	476	188	102	87
Charlottetown, P.E.I.	...	...	...	...	....	....	17	35	75	204	143	52	36	30
Winnipeg, Man	....	14	2	4	22	25	79	179	199	741	621	191	171	177
Calgary, Alta	60	...	...	...	2	5	5	36	27	193	160	63	61	61
Nelson	....	...	...	...	1	1	6	17	40	164	97	51	46	44
Vancouver	....	50	...	...	4	5	18	68	75	461	375	110	84	81
British Columbia	...	50	...	...	5	6	24	85	115	565	472	161	130	125
Dawson, Yukon	....	...	...	...	....	....	1	...	...	3	3	...	...	...
Grand totals	110	2,625	17	32	613	276	2,985	3,470	6,843	14,537	13,063	6,007	5,468	4,869

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

SESSIONAL PAPER No. 13

C—*Continued.*

each Denomination, Verified in each Inspection Division during the Fiscal 1908—*Continued.*

Weights.							Troy and Decimal Weights.	Miscellaneous Weights.	Lineal Measures.										Miscellaneous Measures.
dupois.																			
1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Number.			6 feet.	5 feet.	1 yard.	½ yard.	2 feet.	1 foot.	½ foot.	100 feet chains.	66 feet chains.	Tape of riband.	Total Number.	
99	46	22	5	1	..	2,063	..	5	....	....	152	..	..	..	..	..	..	..	152	....
354	246	81	12	15	...	13,703	..	4	....	..	804	..	..	..	..	..	..	..	804	...
689	750	1,046	7	1	2	5,958	..	..	....	....	425	..	..	..	..	..	..	..	425	....
431	244	133	59	72	...	9,552	..	..	....	....	1,336	..	..	..	..	..	..	..	1,336	....
261	153	71	10	3	1	3,471	26	....	....	....	622	..	..	..	..	..	..	..	622	..
1,837	1,439	1,353	93	92	3	34,747	26	9	....	....	3,339	..	..	..	..	..	..	..	3,339	...
724	356	136	73	98	3	11,432	138	77	....	...	2,319	..	..	..	..	..	..	..	2,319	....
589	149	35	9	7	1	7,687	..	861	....	...	950	..	..	..	..	..	..	..	950	....
165	49	11	5	....	...	3,348	..	..	....	....	410	..	..	..	..	..	..	..	410	....
22	7	....	....	....	....	543	..	..	....	....	1	..	..	..	..	..	..	..	1	....
1,500	561	182	87	105	4	23,010	138	938	....	...	3,680	..	..	..	..	..	..	..	3,680	....
119	40	17	4	2	1	3,095	..	4	....	....	88	..	..	..	..	..	..	..	88	....
....	....	....	....	....	....	482	....	....	..	....	120	..	..	..	..	..	..	..	120	....
63	18	5	1	..	....	1,362	....	16	....	....	26	..	..	..	..	..	..	..	26	..
17	11	5	2	2	....	347	..	1	....	....	45	..	..	..	..	..	..	..	45	....
80	29	10	3	2	....	2,191	....	17	....	....	191	..	..	..	..	..	..	..	191	....
26	16	9	3	....	....	646	20	....	..	....	3	..	..	..	..	..	..	..	3	..
173	160	125	75	91	2	3,051	40	..	....	....	318	..	..	..	..	..	..	..	318	....
60	50	43	3	....	....	829	....	1	....	....	85	..	..	..	..	..	..	..	85	...
39	34	26	12	2	....	520	....	....	....	....	114	..	..	..	..	..	..	..	114	....
66	51	35	26	2	....	1,511	..	19	....	....	....	..	..	..	..	..	..	..	....	....
105	85	61	38	4	..	2,031	..	19	....	....	114	..	..	..	..	..	..	..	114	....
....	....	....	....	....	....	7	....	9	....	....	....	..	..	..	..	..	..	..	....	....
3,900	2,380	1,800	306	296	10	69,607	224	997	....	....	7,818	..	..	..	..	..	..	..	7,818	....

W. J. GERALD,
Deputy Minister.

APPENDIX

RETURN showing the number of Dominion Weights and Lineal Measures of each March 31,

INSPECTION DIVISIONS.	DOMINION Avoir													
	60 lbs.	50 lbs.	30 lbs.	20 lbs.	10 lbs.	7 lbs.	5 lbs.	4 lbs.	3 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.
Belleville														
Hamilton								4		8	2	4	2	
Ottawa						1	3	4	6	5				
Toronto							2	1		3	3	1	1	1
Windsor														
Ontario						1	5	9	6	16	5	5	3	1
Montreal						2	3	5	8	10	12	12	7	5
Quebec					1		6	21	19	35	29	21	18	15
St. Hyacinthe														
Three Rivers														
Quebec					1	2	9	26	27	45	41	33	25	20
St. John, N.B.									1					
Cape Breton											2	3		
Halifax														
Pictou														
Nova Scotia											2	3		
Charlottetown, P.E.I.														
Winnipeg, Man.										1	1			
Calgary, Alta														
Nelson														
Vancouver														
British Columbia														
Dawson, Yukon														
Grand totals					1	3	14	35	34	62	49	41	28	21

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

SESSIONAL PAPER No. 13

C—*Concluded.*

Denomination, Rejected in each Inspection Division during the Fiscal Year ended 1909—*Concluded.*

Weights.							Troy and Decimal Weights.	Miscellaneous Weights.	Lineal Measures.									Miscellaneous Measures.
dupois.																		
1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Number.			6 feet.	5 feet.	1 yard.	½ yard.	2 feet.	1 foot.	½ foot.	100 feet chains.	66 feet chains.	Tape or Rulaird.	Total Number.	
	1					21					89									
						19														
1						13														
1	1					53					89									
1						65														
8						173		2			45									
9						238		2			45									
						1														
						5					1									
						5					1									
						2														
10	1					299		2			135									

W. J. GERALD,
Deputy Minister.

9-10 EDWARD VII., A. 1910

APPENDIX

RETURN showing the number of Dominion Measures of Capacity, Balances and Division, during the Fiscal Year

INSPECTION DIVISIONS.	MEASURES OF CAPACITY. Dominion. Bushel.	½ Bushel.	Peck.	Gallon.	½ Gallon.	Quart.	Pint.	½ Pint.	Gill.	½ Gill.	Total Number.	Miscellaneous.
Belleville	12	196	307	455	423	727	503	56	....	1	2,680	53
Hamilton	..	65	184	820	1,001	1,482	1,300	265	11	....	5,128	363
Ottawa	1	8	67	311	522	526	217	96	2	...	1,750	81
Toronto	32	498	823	2,663	2,753	4,047	5,575	976	23	....	17,300	2,870
Windsor	613	1,010	1,076	2,302	2,795	6,602	5,381	13	...	...	19,792	131
Ontario	658	1,687	2,457	6,551	7,494	13,384	12,976	1,406	36	1	46,650	3,498
Montreal	...	1,062	1,551	3,914	4,415	8,342	8,127	2,745	341	2	30,499	7,379
Quebec	1	281	307	1,499	1,876	1,595	1,568	609	114	..	8,090	138
St. Hyacinthe	..	115	167	723	1,071	1,194	709	383	92	....	4,454	142
Three Rivers	.....	17	21	80	111	107	90	37	14	....	477	4
Quebec	1	1,475	2,046	6,216	7,473	11,538	10,434	3,774	561	2	43,520	7,663
St. John, N.B	.....	435	361	1,192	1,785	1,443	836	232	8	1	6,293	2,279
Cape Breton	.....	2	....	44	191	104	22	....	..	...	363	48
Halifax	1	5	6	128	235	175	119	21	2	1	693	233
Pictou	..	2	1	91	176	228	145	2	....	...	645	45
Nova Scotia	1	9	7	263	602	507	286	23	2	1	1,701	326
Charlottetown, P.E.I	...	...	...	6	22	126	24	....	...	...	178	42
Winnipeg, Man	104	36	2	1,125	1,177	1,976	1,551	34	2	....	6,007	419
Calgary, Alta	6	2	...	157	225	162	59	2	....	...	613	1
Nelson	...	.....	2	69	100	88	42	4	..	.....	305	4
Vancouver	..	..	..	..	.....	38	...	1	....	....	39	9
British Columbia	...	.....	2	69	100	126	42	5	....	...	344	13
Dawson, Yukon	...	...	...	...	..	..	.....	...	...	.....	...	...
Grand totals	770	3,644	4,875	15,579	18,878	29,262	26,268	5,476	609	5	105,366	14,241

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

SESSIONAL PAPER No. 13

D

Weighing Machines of each Denomination presented for Verification in each Inspection ended 31st March, 1909.

Balances.														
With equal arms.				Steelyards with divided arms.				Weigh Bridges or Platform Scales.						
5 lbs. and under.	6 lbs. to 50 lbs.	51 lbs. to 100 lbs.	101 lbs. and upwards.	500 lbs. and under.	501 lbs. to 1,000 lbs.	1,001 lbs. to 2,000 lbs.	2,001 lbs. and upwards.	250 lbs. and under.	251 lbs. to 500 lbs.	501 lbs. to 2,000 lbs.	2,001 lbs. to 4,000 lbs.	4,001 lbs. to 6,000 lbs.	6,001 lbs. and upwards.	Miscellaneous.
147	220			74		3		318	83	384	159	71	359	435
1,423	1,839			2,760	27	9		3,176	95	2,297	277	85	343	3,289
881	181	1		22		24		714	123	1,383	89	70	110	692
718	1,231			476	15	6	7	1,151	104	1,054	325	142	429	7,618
327	363			188	11	4		584	77	2,502	244	83	725	2,407
3,496	3,854	1		3,320	53	38	8	5,953	562	7,531	1,044	389	1,946	14,716
875	1,670		1	1,005	23	3	9	2,250	1,014	1,934	155	161	362	7,116
248	956	2	64	278	1			972	761	536	33	24	65	434
237	496	59	3	184	2			89	464	768	32	73	129	148
12	72			2				84	4	50	6	4	9	12
1,302	3,197	61	68	1,471	26	3	9	4,136	2,283	3,292	226	264	565	7,710
178	474	1		31	1			779	310	505	40	20	112	774
58	78			44	22		1	153	25	71		40	41	118
94	221	1	1	71				369	68	150	17	17	60	194
30	50			9				88	38	36	8	17	25	62
182	349	1	1	124	22		1	610	131	297	25	74	126	374
31	112			20				127	65	212	8	17	19	63
200	339	4		103	2			1,070	25	940	246	61	677	1,027
100	59			30	2	1		386	55	281	45	221	354	281
49	46			24		22		220	18	208	14	9	70	171
171	177	1		88	20	29	1	604	58	544	59	13	61	1,229
220	223	1		112	20	51	1	824	71	752	73	22	161	1,401
						2		14	1	11	4			4
5,769	8,611	69	69	5,190	126	95	19	13,889	3,478	13,761	1,709	1,630	3,925	30,486

W. J. GERALD,
Deputy Minister.

APPENDIX

RETURN showing the number of Dominion Measures of Capacity, Balances and during the Fiscal Year

INSPECTION DIVISIONS.	MEASURES OF CAPACITY. Dominion. Bushel.	½ Bushel.	Peck.	Gallon.	½ Gallon.	Quart.	Pint.	½ Pint.	Gill.	½ Gill.	Total Number.	Miscellaneous.
Belleville	12	196	307	455	423	727	503	56	....	1	2,680	53
Hamilton	....	65	184	819	999	1,480	1,300	265	11	....	5,123	354
Ottawa	1	6	62	306	519	526	217	96	2	....	1,735	81
Toronto	32	408	823	2,663	2,753	4,047	5,575	976	23	..	17,300	2,870
Windsor	613	1,010	1,076	2,302	2,795	6,602	5,381	13	....	....	19,792	131
Ontario	658	1,685	2,452	6,545	7,489	13,382	12,976	1,406	36	1	46,630	3,489
Montreal	....	1,062	1,550	3,914	4,414	8,341	8,127	2,745	341	2	30,496	7,379
Quebec	1	281	307	1,492	1,870	1,889	1,504	608	114	....	8,066	138
St. Hyacinthe	....	114	167	721	1,071	1,194	709	383	92	....	4,451	142
Three Rivers	....	17	21	80	111	107	90	37	14	....	477	3
Quebec	1	1,474	2,045	6,207	7,466	11,531	10,430	3,773	561	2	43,490	7,662
St. John, N. B.	....	435	361	1,192	1,785	1,442	836	232	8	1	6,292	2,279
Cape Breton	....	2	....	44	191	102	21	....	....	....	360	47
Halifax	1	5	6	128	235	175	119	21	2	1	693	233
Pictou	....	2	1	91	176	228	145	2	....	....	645	45
Nova Scotia	1	9	7	263	602	505	285	23	2	1	1,698	325
Charlottetown, P.E.I.	....	....	....	6	22	126	24	....	....	....	178	42
Winnipeg, Man.	104	36	2	1,125	1,177	1,976	1,551	34	2	....	6,007	418
Calgary, Alta.	6	2	....	157	225	162	59	2	....	....	613	1
Nelson	....	....	2	69	100	88	42	4	....	....	305	4
Vancouver	....	....	....	....	....	38	....	1	....	....	39	9
British Columbia	....	....	2	69	100	126	42	5	....	....	344	13
Dawson, Yukon	....	....	....	....	....	....	....	....	....	....	....	....
Grand totals	770	3,641	4,869	15,564	18,866	29,250	26,203	5,475	609	5	105,252	14,229

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

SESSIONAL PAPER No. 13

D—*Continued.*

Weighing Machines of each Denomination, Verified in each Inspection Division, ended March 31, 1909—*Continued.*

BALANCES.

With equal arms.				Steelyards with divided arms.				Weigh Bridges or Platform Scales.						
5 lbs. and under.	6 lbs. to 50 lbs.	51 lbs. to 100 lbs.	101 lbs. and upwards.	500 lbs. and under.	501 lbs. to 1,000 lbs.	1,001 lbs. to 2,000 lbs.	2,001 lbs. and upwards.	250 lbs. and under.	251 lbs. to 500 lbs.	501 lbs. to 2,000 lbs.	2,001 lbs. to 4,000 lbs.	4,001 lbs. to 6,000 lbs.	6,001 lbs. and upwards.	Miscellaneous.
147	220	...	...	74	....	3	1	318	85	395	159	71	339	495
1,416	1,725	...	...	2,529	27	2	....	3,078	118	2,027	236	68	258	3,282
861	172	1	...	21	..	24	..	673	114	1,317	36	43	103	623
71	1,221		.	450	15	5	7	1,116	150	985	311	97	418	7,586
324	358	....	....	185	11	4	.	573	73	2,493	211	79	704	2,466
3,460	3,696	1	....	3,259	53	38	8	5,758	540	7,217	983	358	1,822	14,452
869	1,657	...	1	1,004	23	3	9	2,227	995	1,893	148	150	345	7,095
245	953	.....	63	263	1	.....	....	965	739	517	32	24	57	413
227	493	59	3	182	2	.....	....	817	446	745	30	63	118	148
12	72	....	....	2	.....	...	....	83	41	58	6	6	9	11
1,353	3,175	59	67	1,451	26	3	9	4,092	2,221	3,213	216	243	529	7,667
178	477	1	.....	31	1	.....	...	766	310	505	40	26	109	774
58	76	....	....	44	22	.....	1	151	24	51	.....	40	41	118
94	221	1	1	51	.....	.....	....	366	67	150	16	16	58	194
30	50	.....	...	9	.....	.....	...	88	38	36	8	17	21	62
182	347	1	1	104	22	.....	1	605	129	237	24	73	120	374
31	112	.....	.....	20	.....	.....	...	127	63	212	8	17	19	63
198	338	4	.....	96	2	.....	...	1,045	25	895	243	604	642	5,372
100	59	.....	.....	30	2	1	....	386	35	281	45	221	352	283
49	46	...	.....	24	....	22	....	220	18	208	14	9	70	171
171	177	1	.....	88	20	29	1	604	53	544	59	13	61	1,229
220	223	1	.....	112	20	51	1	824	71	752	73	22	131	1,400
..	..	...	.....	....	....	2	..	14	1	11	4	.....	.....	4
5,722	8,427	67	68	5,103	126	95	19	13,617	3,395	13,323	1,636	1,564	3,724	30,389

W. J. GERALD,
Deputy Minister,

APPENDIX

RETURN showing the number of Dominion Measures of Capacity, Balances and Weigh
Fiscal Year ended

INSPECTION DIVISIONS	MEASURES OF CAPACITY. Dominion.											
	Bushel.	½ Bushel.	Peck.	Gallon.	½ Gallon.	Quart.	Pint.	½ Pint.	Gill.	½ Gill.	Total Number.	Miscellaneous.
Belleville												
Hamilton				1	2	2					5	9
Ottawa		2	5	5	3						15	
Toronto												
Windsor												
Ontario		2	5	6	5	2					20	9
Montreal			1		1	1					3	
Quebec				7	6	6	4	1			24	
St. Hyacinthe		1		2							3	
Three Rivers												1
Quebec		1	1	9	7	7	4	1			30	1
St. John, N. B						1					1	
Cape Breton						2	1				3	1
Halifax												
Pictou												
Nova Scotia						2	1				3	1
Charlottetown, P.E.I.												
Winnipeg, Man.												1
Calgary, Alberta												
Nelson												
Vancouver												
British Columbia												
Dawson, Yukon												
Grand totals		3	6	15	12	12	5	1			54	12

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

SESSIONAL PAPER No. 13

D—*Concluded.*

ing Machines of each Denomination, Rejected, in each Inspection Division, during the March 31, 1908.

BALANCES.

With equal arms.				Steelyards with divided arms.				Weigh Bridges or Platform Scales.						Miscellaneous.
5 lbs. and under.	6 lbs. to 50 lbs.	51 lbs. to 100 lbs.	101 lbs. and upwards.	500 lbs. and under.	501 lbs. to 1,000 lbs.	1,001 lbs. to 2,000 lbs.	2,001 lbs. and upwards.	250 lbs. and under.	251 lbs. to 500 lbs.	501 lbs. to 2,000 lbs.	2,001 lbs. to 4,000 lbs.	4,001 lbs. to 6,000 lbs.	6,001 lbs. and upwards.	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	114	.....	.....	31	.....	.....	.....	98	7	220	41	17	85	7
20	9	.....	.....	1	.....	.....	.....	27	9	16	3	8	7	29
6	30	.....	.....	26	.....	.....	.....	35	4	49	12	5	11	27
3	5	.....	.....	3	.....	.....	.....	11	2	29	3	1	21	1
36	158	..	.	61	.....	.....	.....	171	22	314	59	31	124	64
6	13	.....	.....	2	.....	.....	.....	23	19	41	7	11	17	21
3	6	2	1	15	.....	.....	.....	7	22	19	1	.....	8	6
.	3	.....	.....	2	.....	.....	.....	13	18	18	2	10	6	.....
.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	1
9	22	2	1	19	.	.....	..	44	59	79	10	21	31	28
.....	1	..	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	3	.....
..	2	.....	.....	..	.....	.....	.....	2	1	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	1	2	.....
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.....
.....	2	.....	.....	..	.....	.....	.....	2	2	.....	1	1	6	.....
.. ...	.....	.....	.....	.	.....	.....	.....	.....	.....	.....	.....	.....	.	.....
2	1	.....	.....	7	.....	.....	.....	31	.....	45	3	11	35	5
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
47	184	2	1	87	.....	.....	.....	252	83	438	73	66	201	97

W. J. GERALD,
Deputy Minister.

APPENDIX E

STATEMENT of Gas Inspection Expenditures and Revenues for the Fiscal Year ended March 31, 1909.

Districts.	Inspectors and Assistants.	Expenditures.						Revenues.
		Salaries.	Special Assistance.	Rent.	Travelling Expenses.	Sundries.	Totals.	
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Barrie	Shanacy, M	100 00					100 00	119 25
Belleville	Johnson, Wm Stuart, W. E	549 96		81 25			631 21	374 00
Berlin	Broadfoot, S	100 00			35 15	33 15	168 30	477 00
Brockville	Johnston, C.W. (actg) Fraser, H							270 00
Cobourg	Bickle, J. W	100 00			12 35	34 75	147 10	175 00
Cornwall	Mulhern, M. M	100 00				30 00	130 00	65 00
Guelph	Broadfoot, S	200 00				33 10	233 10	295 50
Hamilton	McPhie, D Dennis, W. A Murphy, F. C McPhie, W. H	3,433 22		120 00	156 75	150 94	3,860 91	5,519 25
Kingston	Gallagher, Thos Fraser, H	161 24			3 00		164 24	388 75
Listowel	Male, Thos	100 00		78 00		16 75	194 75	53 00
London	Nash, A. F Skelton, A. R	2,049 96			348 45	126 68	2,525 09	4,751 50
Napanee	Johnson, Wm. (actg)				24 15		24 15	54 75
Ottawa	Roche, H. G Bond, M. B Roche, W. J	2,800 87	42 77	450 00		84 40	3,378 04	2,093 75
Owen Sound	Graham, W. J	200 00		125 00			325 00	159 25
Peterborough	Rork, Thos	150 00					150 00	441 50
Sarnia	Thrasher, W. A	95 23				4 35	99 58	679 00
Stratford	Rennie, Geo	200 00				13 50	213 50	132 75
Toronto	Johnstone, J. K Pape, Jas Renahan, M. J Stiver, J. L Hunter, W. M	5,149 80	66 66		24 30	95 51	5,336 27	12,775 75
Woodstock	Orr, H. N	150 00			3 95	13 95	167 90	309 50
	Ontario	15,640 28	109 43	854 25	608 10	637 08	17,849 14	29,134 50
Montreal	Aubin, A O'Flaherty, M. J Aubin, Chs Mann, Wm	4,299 84		240 00	42 75	159 35	4,741 94	12,404 71
Quebec	LeVasseur, N Béland, F. X. J. E	1,400 00		150 00	2 50	180 50	1,733 00	1,158 25
Sherbrooke	Simpson, A. F Bowen, F. C	249 96					249 96	93 25
St. Hyacinthe	Benoit, L. V	100 00				17 00	117 00	65 50
	Quebec	6,049 80		390 00	45 25	356 85	6,841 90	13,721 71
Fredericton	Wilson, J. E	100 00			87 00		187 00	36 00
St. John	Wilson, J. E	1,100 00			76 65	5 87	1,182 52	539 75
	New Brunswick	1,200 00			163 65	5 87	1,369 52	575 75
Halifax	Cotter, W. F Munro, H. D Toale, John	1,099 96	600 00	375 00	310 23	108 25	2,493 44	404 75

APPENDIX E—*Continued.*

STATEMENT of Gas Inspection Expenditures and Revenues for the Fiscal Year ended March 31, 1909.

Districts.	Inspectors and Assistants.	Expenditures.						Revenues.
		Salaries.	Special Assistance.	Rent.	Travelling Expenses.	Sundries.	Total.	
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Charlottetown, P.E.I.	Bell, J. H	450 00	..	..	..	10 80	460 80	94 00
Winnipeg, Man.	Magness, R. Mager, J. G	1,099 92	900 00	..	54 05	41 55	2,095 52	1,688 00
Nanaimo	Shaw, John.	100 00	..	..	..	71 72	171 72	45 25
New Westminster	Wolfenden, Wm	158 27	..	..	..	7 35	165 62	183 50
Vancouver	Templeton, W. A	..	533 10	..	46 40	66 50	646 00	2,003 50
Victoria	Jones, R	300 00	..	..	..	..	300 00	753 25
	British Columbia.	558 27	533 10	..	46 40	145 57	1,283 34	2,985 50

RECAPITULATION.

	Expenditures.						Revenues.
	Salaries.	Special Assist'nce.	Rent.	Travelling Expenses.	Sundries.	Total.	
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ontario	15,640 28	109 43	854 25	608 10	637 08	17,849 14	29,134 50
Quebec	6,019 80	..	390 00	45 25	356 85	6,841 90	13,721 71
New Brunswick	1,200 00	..	..	163 65	5 87	1,369 52	575 75
Nova Scotia	1,699 96	600 00	375 00	310 23	108 25	2,493 44	404 75
Prince Edward Island	450 00	..	..	..	10 80	460 80	94 00
Manitoba	1,099 92	900 00	..	54 05	41 55	2,095 52	1,688 00
British Columbia	558 27	533 10	..	46 40	145 57	1,283 34	2,985 50
Chief inspector	83 30	..	..	143 55	0 27	227 12	..
General contingencies	..	..	..	..	755 91	755 91	..
Printing	..	..	..	..	1,612 38	1,612 38	..
Stationery	..	..	..	..	476 79	476 79	..
Lithographing	..	..	..	..	49 50	49 50	..
Grand totals	26,181 53	2,142 53	1,619 25	1,371 23	4,200 82	35,515 36	48,604 21

W. J. GERALD,
Deputy Minister.

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

9-10 EDWARD VII., A. 1910

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	ILLUMINATING POWER.—STANDARD. 16 Candles.					SULPHUR PER 100 Allowance.—		
	Highest	Lowest.	Average.	No. of times below standard.	No. of Test.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Barrie—								
April			19·20	0	1			
May			18 80	0	1			
June			18·70	0	1			
July			18·80	0	1			
August			16·70	0	1			
September			17·30	0	1			
October			17·10	0	1			
November			18·80	0	1			
December			18·90	0	1			
January			18·70	0	1			
February			16·70	0	1			
March			16·50	0	1			
				0	12			
Belleville—								
April	19·61	18·57	19·09	0	2			
May	18·96	18·80	18·88	0	2			
June	20·57	20·00	20·28	0	2			
July	19·00	15·25	17·12	1	2			
August	19·84	19·73	19·78	0	2			
September			19·43	0	1			
October	15·04	18·24	18·64	0	2			
November	20 08	19·43	19·75	0	2			
December	20·79	18 37	19 94	0	3			
January	20·56	17·64	19·10	0	2			
February			19·46	0	1			
March	21·00	19 62	20·31	0	2			
				1	23			
Deseronto—								
April			18·09	0	1			
May			20·70	0	1			
June			20·09	0	1			
July			22·20	0	1			
August			20·10	0	1			
September			22·30	0	1			
October								
November			21·50	0	1			
December			20·30	0	1			
January			22·30	0	1			
February			18·80	0	1			
March			23·00	0	1			
				0	11			

SESSIONAL PAPER No. 13

F.

Inspected during the year ended March 31, 1909.

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphureited Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of test.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							1	0	1	
							2	0	2	
							2	0	2	
							3	0	3	
							2	0	2	
							1	0	1	
							2	0	2	
							23	0	23	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							0	1	1	
							1	0	1	
							1	0	1	
							0	1	1	
							9	2	11	

APPENDIX

Return of the Illuminating Power and Purity of Gas

Inspection Offices.	Illuminating Power.—Standard. 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Berlin—								
April			18.47	0	1			
May			17.77	0	1			
June			17.14	0	1			
July			16.48	0	1			
August			17.04	0	1			
September			17.96	0	1			
October			17.60	0	1			
November			17.28	0	1			
December			16.97	0	1			
January			16.55	0	1			
February			16.54	0	1			
March			16.90	0	1			
				0	12			
Brockville—								
April	20.82	20.64	20.73	0	2			
May	20.70	20.56	20.63	0	2			
June	20.76	20.62	20.69	0	2			
July	20.84	20.43	20.63	0	2			
August	21.00	20.60	20.80	0	2			
September			18.31	0	1			
October			20.32	0	1			
November	20.10	19.90	20.00	0	2			
December			20.10	0	1			
January	20.10	20.00	20.50	0	2			
February	20.10	19.90	20.00	0	2			
March	21.10	19.00	20.00	0	4			
				0	23			
Cobourg—								
April			17.26	0	1			
May			17.55	0	1			
June			17.76	0	1			
July			18.24	0	1			
August			17.72	0	1			
September			17.34	0	1			
October			17.15	0	1			
November			17.23	0	1			
December			17.38	0	1			
January			17.47	0	1			
February			18.02	0	1			
March			17.75	0	1			
				0	12			

SESSIONAL PAPER No. 13

F—*Continued.*

Inspected during the year ended March 31, 1909.

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							0	1	1	
							1	0	1	
							11	1	12	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							1	0	1	
							1	0	1	
							2	0	2	
							1	0	1	
							2	0	2	
							2	0	2	
							4	0	4	
							23	0	23	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							1	1	2	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							23	1	24	

APPENDIX

Return of the Illuminating Power and Purity of Gas

Inspection Offices.	Illuminating Power—Standard. 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Port Hope—								
April			18·74	0	1			
May			19·68	0	1			
June			20·28	0	1			
July			19·46	0	1			
August			18·86	0	1			
September			19·89	0	1			
October			19·50	0	1			
November			18·75	0	1			
December			18·64	0	1			
January			18·62	0	1			
February			19·89	0	1			
March			18 13	0	1			
				0	12			
Cornwall—								
April			18·30	0	1			
May			18·10	0	1			
June			18·05	0	1			
July			18·10	0	1			
August			18·05	0	1			
September			18·05	0	1			
October			18·15	0	1			
November			18·15	0	1			
December			18·10	0	1			
January			18·30	0	1			
February			18·20	0	1			
March			18 00	0	1			
				0	12			
Guelph—								
April			18·57	0	1			
May			18·07	0	1			
June			17·24	0	1			
July			18·56	0	1			
August			18·05	0	1			
September			17·58	0	1			
October			17·93	0	1			
November			17·15	0	1			
December			17 45	0	1			
January			18·19	0	1			
February			18·22	0	1			
March			18·16	0	1			
				0	12			

SESSIONAL PAPER No. 13

F—*Continued.*

Inspected during the year ended March 31, 1909.

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
							12	0	12	
							24	0	24	
							12	0	12	
							12	0	12	

APPENDIX

Return of the Illuminating Power and Purity of Gas

Inspection Offices.	Illuminating Power.—Standard. 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Hamilton—								
April	17·87	17·72	17·79	0	2			
May	18·37	18·06	18·21	0	2			
June	17·85	17·74	17·79	0	2			
July	18·28	18·08	18·18	0	2			
August	18·46	18·18	18·32	0	2			
September	18·24	17·84	18·08	0	3			
October	18·33	18·26	18·29	0	2			
November	13·31	18·14	18·22	0	2			
December	18·23	18·21	18·22	0	2			
January	18·16	18·05	18·10	0	2			
February	18·48	18·26	18·37	0	2			
March	18·39	18·07	18·21	0	3			
				0	26			
Bertie Natural Gas Co.—								
April								
May								
June								
July								
August								
September								
October								
November								
December								
January								
February								
March								
Branttord Natural Gas Co.—								
April								
May								
June								
July								
August								
September								
October								
November								
December								
January								
February								
March								

SESSIONAL PAPER No. 13

F—*Continued.*

Inspection during the year ended March 31, 1908.

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							3	0	3	
							26	0	26	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	

APPENDIX

Return of the Illuminating Power and Purety of Gas

Inspection Offices.	Illuminating Power.—Standard. 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Dominion Natural Gas Co., Dundas & Dunnville—								
April								
May								
June								
July								
August								
September								
October								
November								
December								
January								
February								
March								
Mutual Natural Gas Co.— Welland and Port Colborne.								
April								
May								
June								
July								
August								
September								
October								
November								
December								
January								
February								
March								
Port Colborne—Welland, Nat. Gas Co., Caledonia—								
April								
May								
June								
July								
August								
September								
October								
November								
December								
January								
February								
March								

SESSIONAL PAPER No. 13

F—*Continued.*

Inspected during the year ended March 31, 1909.

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							26	0	26	
							0	1	1	
							0	1	1	
							0	1	1	
							0	1	1	
							0	1	1	
							0	1	1	
							0	1	1	
							0	1	1	
							0	1	1	
							0	1	1	
							0	1	1	
							0	1	1	
							0	12	12	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	

APPENDIX

Return of the Illuminating Power and Purity of Gas

Inspection Offices.	Illuminating Power—Standard. 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Averages.	No. of times below standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Provincial Natural Gas Co.—								
Niagara Falls and Bridgeburg								
April								
May								
June								
July								
August								
September								
October								
November								
December								
January								
February								
March								
St. Catharines Gas Co.—								
April			17·63	0	1			
May			17·55	0	1			
June			17·65	0	1			
July			17·95	0	1			
August			17·63	0	1			
September			17·68	0	1			
October			17·45	0	1			
November			17·46	0	1			
December			17·37	0	1			
January			17·47	0	1			
February			17·73	0	1			
March			16·70	0	1			
				0	12			
Dominion Natural Gas Co.—								
Galt.								
April								
May								
June								
July								
August								
September								
October								
November								
December								
January								
February								
March								

SESSIONAL PAPER No. 13

F—*Continued.*

Inspected during the year ended March 31, 1909.

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			Remarks.
No. of times in excess of allowance	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
							0	2	2	
							0	2	2	
							0	2	2	
							0	2	2	
							0	2	2	
							0	2	2	
							0	2	2	
							0	2	2	
							0	2	2	
							0	2	2	
							0	2	2	
							0	3	3	
							0	26	26	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	

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APPENDIX

Return of the Illuminating Power and Purity of Gas

Inspection Offices.	Illuminating Power.—Standard. 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
United Natural Gas—								
April								
May								
June								
July								
August								
September								
October								
November								
December								
January								
February								
March								
Ontario Pipe Line—								
April								
May								
June								
July								
August								
September								
October								
November								
December								
January								
February								
March								
Kingston—								
April	20·70	19·81	20·25	0	2			
May	20·61	19·46	20·03	0	2			
June	20·00	19·08	19·54	0	2			
July	19·46	19·11	19·28	0	2			
August	18·90	16·70	17·80	0	2			
September			19·60	0	1			
October			19·50	0	1			
November	20·00	19·80	19·90	0	2			
December			20·10	0	1			
January	20·10	19·50	19·80	0	2			
February	20·00	19·60	19·80	0	2			
March	20·00	19·00	19·60	0	4			
				0	23			

SESSIONAL PAPER No. 13

F—*Continued.*

Inspected during the year ended March 31, 1909.

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Test.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	
							4	0	4	
							4	0	4	
							4	0	4	
							5	0	5	
							4	0	4	
							5	0	5	
							4	0	4	
							4	0	4	
							5	0	5	
							4	0	4	
							4	0	4	
							5	0	5	
							52	0	52	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							2	0	2	
							1	0	1	
							1	0	1	
							2	0	2	
							1	0	1	
							2	0	2	
							2	0	2	
							4	0	4	
							23	0	23	

APPENDIX

Return of the Illuminating Power and Purity of Gas

Inspection Offices.	Illuminating Power.—Standard. 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Listowel--								
April			18·94	0	1			
May			18·88	0	1			
June			19·38	0	1			
July			19·62	0	1			
August			19·36	0	1			
September			19·92	0	1			
October			17·34	0	1			
November			18·12	0	1			
December			19·02	0	1			
January			17·60	0	1			
February			18·07	0	1			
March			18·20	0	1			
				0	12			
London—								
April	18·31	15·32	16·66	1	8			
May	18·36	15·72	17·15	1	10			
June	17·70	16·50	17·02	0	8			
July	18·82	15·67	16·75	3	8			
August	21·40	18·42	16·70	0	10			
September	20·46	17·41	18·88	0	8			
October	19·32	17·54	18·41	0	10			
November	19·74	16·25	18·53	0	8			
December	20·80	17·48	18·92	0	8			
January	22·41	16·19	18·36	0	10			
February	19·77	17·07	18·54	0	8			
March	18·78	16·88	18·05	0	8			
				5	104			
Chatham—								
April								
May								
June								
July								
August								
Septembre								
Octobre								
Novembre								
Decembre								
January								
February								
March								

SESSIONAL PAPER No. 13

F—*Continued.*

Inspected during the year ended March 31, 1909—*Continued.*

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	
							8	0	8	
							10	0	10	
							8	0	8	
							8	0	8	
							10	0	10	
							8	0	8	
							10	0	10	
							8	0	8	
							8	0	8	
							10	0	10	
							8	0	8	
							8	0	8	
							104	0	104	
							0	2	2	
							0	3	3	
							0	2	2	
							1	0	1	
							2	0	2	
							2	0	2	
							3	0	3	
							3	0	3	
							0	1	1	
							0	1	1	
							0	2	2	
							0	2	2	
							11	13	24	

APPENDIX

Return of the Illuminating Power and Purity of Gas

Inspection of Offices.	Illuminating Power.—Standard. 16 Candles.					Sulphur per 100 Allowance		
	Highest.	Lowest.	Average.	No. of times below standard.	No. of Test.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Ingersoll—								
April			16·39	0	1			
May	18·19	12·55	15·23	1	2			
June			16·06	0	1			
July			16·09	0	1			
August			17·30	0	1			
September			16·71	0	1			
October			13·58	1	1			
November			15·58	1	1			
December			20·13	0	1			
January			16·85	0	1			
February			15·04	1	1			
March			17·13	0	1			
				4	13			
City of St. Thomas—								
April			16·69	0	1			
May	18·15	17·20	17·67	0	1			
June			17·98	0	1			
July			16·87	0	1			
August	19·80	18·79	19·29	0	2			
September			18·27	0	1			
October			17·78	0	1			
November			16·50	0	1			
December			16·81	0	1			
January			17·37	0	1			
February			17·00	0	1			
March			17·67	0	1			
				0	13			
Windsor—								
April			17·03	0	1			
May	17·40	16·69	17·04	0	2			
June	17·63	15·23	16·43	1	2			
July	15·45	15·27	15·36	2	2			
August	17·05	15·74	16·39	1	2			
September	16·90	16·10	16·50	0	2			
October			16·32	0	1			
November	16·73	15·92	16·32	1	2			
December			16·46	0	1			
January			16·33	0	1			
February			16·74	0	1			
March			16·00	0	1			
				5	18			

SESSIONAL PAPER No. 13

F—*Continued.*

Inspected during the year ended March 31, 1909—*Continued.*

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
							1	0	1	
							2	0	2	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							0	1	1	
							1	0	1	
							12	1	13	
							1	0	1	
							2	0	2	
							1	0	1	
							1	0	1	
							2	0	2	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							14	0	14	
							1	0	1	
							2	0	2	
							3	0	3	
							3	0	3	
							3	0	3	
							2	0	2	
							1	0	1	
							2	0	2	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							18	0	18	

APPENDIX

Return of the Illuminating Power and Purity of Gas

Inspection Offices.	Illuminating Power.—Standard. 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Napanee—								
April			20·10	0	1			
May								
June								
July								
August								
September			21·06	0	1			
October			19·14	0	1			
November			21·08	0	1			
December			19·87	0	1			
January								
February			19·60	0	1			
March								
				0	6			
Ottawa—								
April	16·51	16·34	16·42	0	8	14·92	14·61	14·76
May	16·85	16·06	16·45	0	8	14·75	14·58	14·66
June	16·78	16·34	16·53	0	10	14·93	14·37	14·65
July	16·75	16·27	16·50	0	8	14·97	14·47	14·72
August	16·65	16·28	16·45	0	8	14·85	14·63	14·74
September	16·66	16·35	16·43	0	10	14·85	14·58	14·71
October	16·79	16·29	16·50	0	8	14·85	14·38	14·61
November	16·72	16·23	16·49	0	8	27·30	14·95	21·12
December	16·68	16·32	16·51	0	10	14·66	14·58	14·62
January	16·68	16·39	16·48	0	8	14·95	14·63	14·79
February	16·64	16·27	16·46	0	8	14·75	14·29	14·52
March	16·62	16·29	16·45	0	10	14·81	14·29	14·55
				0	104			
Owen Sound—								
April			16·20	0	1			
May			16·28	0	1			
June			17·00	0	1			
July			16·30	0	1			
August			16·71	0	1			
September			16·50	0	1			
October			16·33	0	1			
November			16·50	0	1			
December			17·00	0	1			
January			16·12	0	1			
February			16·50	0	1			
March			16·25	0	1			
				0	12			

SESSIONAL PAPER No. 13

F—*Continued.*

inspected during the year ended March 31, 1909—*Continued.*

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
							1	0	1	
										Gas works burned up.
										Gas works not rebuilt yet.
										" " "
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
										No test. Pressure gauge broken.
							1	0	1	No test. Photometer broken.
							6	0	6	
0	2	1·96	1·77	1·86	0	2	8	0	8	
0	2	2·22	2·18	2·20	0	2	8	0	8	
0	2	2·18	2·12	2·15	0	2	10	0	10	
0	2	2·20	2·16	2·18	0	2	8	0	8	
0	2	2·26	2·16	2·21	0	2	8	0	8	
0	2	2·18	2·13	2·15	0	2	10	0	10	
0	2	2·16	2·18	1·67	0	2	8	0	8	
0	2	2·17	1·34	1·75	0	2	8	0	8	
0	2	1·22	2·03	2·12	0	2	10	0	10	
0	2	1·86	1·23	1·54	0	2	8	0	8	
0	2	2·16	1·77	1·96	0	2	8	0	8	
0	2	2·29	2·13	2·21	0	2	10	0	10	
0	24				0	24	101	0	104	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	

APPENDIX

Return of the Illuminating Power and Purity of Gas

Inspection Office.	Illuminating Power—Standard. 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Peterborough—								
April	17·20	16·80	17·00	0	2			
May	20·40	17·40	18·90	0	2			
June	21·00	19·20	20·10	0	2			
July	20·20	18·80	19·50	0	2			
August	20·40	19·00	19·70	0	2			
September	17·20	16·80	17·00	0	2			
October	18·00	17·20	17·60	0	2			
November	17·60	16·80	17·20	0	2			
December	18·10	17·00	17·55	0	2			
January	17·80	16·60	17·20	0	2			
February	17·20	16·40	16·80	0	2			
March	18·60	18·00	18·30	0	2			
				0	24			
Sarnia—								
April			20·30	0	1			
May			19·04	0	1			
June			19·96	0	1			
July			17·44	0	1			
August			17·44	0	1			
September			19·56	0	1			
October			20·30	0	1			
November			20·72	0	1			
December			19·86	0	1			
January			19·92	0	1			
February			19·34	0	1			
March			19·72	0	1			
				0	12			
Stratford—								
April								
May			17·54	0	1			
June			16·80	0	1			
July			17·23	0	1			
August			17·22	0	1			
September			17·36	0	1			
October			16·60	0	1			
November			16·40	0	1			
December			17·09	0	1			
January			16·96	0	1			
February			16·94	0	1			
March			16·00	0	1			
				0	11			

SESSIONAL PAPER No. 13

F—*Continued.*

Inspected during the year ended March 31, 1909—*Continued.*

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
							12	0	12	
							12	0	12	
							12	0	12	
							12	0	12	
							12	0	12	
							12	0	12	
							12	0	12	
							12	0	12	
							12	0	12	
							12	0	12	
							12	0	12	
							12	0	12	
							24	0	24	
							1	0	1	
							0	1	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							0	1	1	
							1	0	1	
							10	2	12	
										No test made.
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							11	0	11	

APPENDIX

Return of the illuminating Power and Purity of Gas

Inspection Office.	Illuminating Power—Standard. 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Toronto—								
April	19·21	18·44	18.80	0	9	.....	.....	.....
May	18·89	18·28	18·62	0	9	.....	.....	.....
June	19·10	18.13	18·57	0	9	14·81	11·25	13·03
July	18·94	18·36	18·57	0	8	14·12	12·65	13·38
August	21·09	17.92	19·65	0	9	11·31	9·89	10·60
September	20·70	19·66	29·27	0	9	14·22	13·83	14·02
October	20·73	19·55	20·11	0	9	12·45	11·10	11·77
November	20·99	19·82	20·43	0	8	16·96	12·84	14·90
December	20·56	19·42	20·19	0	9	15·26	13·90	14·58
January	20·94	20·29	19·42	0	9	12·60	10·46	8·32
February	19·93	18·50	18·93	0	8	14·51	11·59	13·05
March	19·05	18·06	18·63	0	9	14·06	8·50	11·28
				0	105			
Woodstock—								
April	.....	.....	17·52	0	1	.....	.....	.....
May	.....	.....	16·47	0	1	.....	.....	.....
June	.....	.....	16·93	0	1	.....	.....	.....
July	.....	.....	17·15	0	1	.....	.....	.....
August	.....	.....	16·38	0	1	.....	.....	.....
September	.....	.....	16·86	0	1	.....	.....	.....
October	.....	.....	16·92	0	1	.....	.....	.....
November	.....	.....	16·85	0	1	.....	.....	.....
December	.....	.....	17·16	0	1	.....	.....	.....
January	.....	.....	16·42	0	1	.....	.....	.....
February	.....	.....	16·98	0	1	.....	.....	.....
March	.....	.....	16·73	0	1	.....	.....	.....
				0	12			
Montreal—								
April	16·81	16·16	16 46	0	8	7·60	7·00	7·30
May	18·35	16·50	17·42	0	9	2·91	2·80	2·85
June	19·71	16·98	17·99	0	9	2·80	2·80	2·80
July	18·98	16·98	18·01	0	9	5 62	2·97	4·29
August	20·68	17·08	19·19	0	8	4·25	3·68	3·96
September	20·47	16·78	18·20	0	9	3·30	2·48	2·89
October	17·02	16·02	16·35	0	9	2·86	2·75	2·80
November	18·12	16·13	17·23	0	8	2·80	2·26	2·53
December	17·19	16·01	16·22	0	9	2·93	2·58	2·75
January	17·53	16·07	16·52	0	9	3·18	2·61	2·89
February	16·39	16·01	16·12	0	8	2·56	2·05	2·30
March	16·49	16·00	16·18	0	9	2·28	2 11	2.19
				0	104			

SESSIONAL PAPER No. 13

F.—*Continued.*

Inspected during the year ended March 31, 1909—*Continued.*

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphureted Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Test.	
		Grains.	Grains.	Grains.						
...	...	...	...	...	...		9	0	9	No test made of sul. and ammonia
...	...	...	...	...	...		9	0	9	" " "
0	2	0·20	0·17	0·18	0	2	9	0	9	
0	2	0·30	0·27	0·25	0	2	8	0	8	
0	2	0·28	0·20	0·24	0	2	9	0	9	
0	2	0·28	0·20	0·24	0	2	9	0	9	
0	2	0·20	0·10	0·15	0	2	9	0	9	
0	2	0·18	0·00	0·09	0	2	8	0	8	
0	2	1·25	1·22	1·23	0	2	9	0	9	
0	2	0·20	0·00	0·10	0	2	9	0	9	
0	2	0·67	0·52	0·33	0	2	8	0	8	
0	2	0·18	0·15	0·16	0	2	9	0	9	
0	20				0	20	105	0	105	
...	...	...	...	...	...	...	1	0	1	
...	...	...	...	...	...	...	1	0	1	
...	...	...	...	...	...	...	1	0	1	
...	...	...	...	...	...	...	1	0	1	
...	...	...	...	...	...	...	1	0	1	
...	...	...	...	...	...	...	1	0	1	
...	...	...	...	...	...	...	1	0	1	
...	...	...	...	...	...	...	1	0	1	
...	...	...	...	...	...	...	1	0	1	
...	...	...	...	...	...	...	1	0	1	
...	...	...	...	...	...	...	1	0	1	
...	...	...	...	...	...	...	12	0	12	
0	2	...	...	0·00	0	2	12	0	12	
0	2	...	...	0·00	0	2	13	0	13	
0	2	...	...	0·00	0	2	13	0	13	
0	2	...	...	0·00	0	2	14	0	14	
0	2	...	...	0·00	0	2	12	0	12	
0	2	...	...	0·00	0	2	13	0	13	
0	2	...	...	0·00	0	2	14	0	14	
0	2	...	...	0·00	0	2	12	0	12	
0	2	...	...	0·00	0	2	14	0	14	
0	2	...	...	0·00	0	2	14	0	14	
0	2	...	...	0·00	0	2	12	0	12	
0	2	...	...	0·00	0	2	13	0	13	
0	24				0	24	156	0	156	

APPENDIX

Return of the Illuminating Power and Purity of Gas

Inspection Office.	Illuminating Power.—Standard. 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below standard.	No. of Test.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Quebec—								
April			17·87	0	1	20·55	16·86	18·70
May			17·10	0	1	19·73	16·72	18·22
June			18·00	0	1	17·95	17·94	17·95
July			17·57	0	1	22·10	16·79	19·44
August			17·23	0	1	19·56	17·75	18·65
September			17·70	0	1	20·54	17·44	18·99
October			17·32	0	1	19·56	17·29	18·42
November			18·06	0	1	17·61	16·64	17·12
December			16·43	0	1	19·75	16·29	18·02
January			17·11	0	1	18·50	17·18	17·84
February			17·12	0	1	18·00	16·05	17·02
March			17·24	0	1	20·80	15·32	18·06
				0	12			
Sherbrooke—								
April			18·29	0	1			
May			16·34	0	1			
June			16·65	0	1			
July			17·16	0	1			
August			19·64	0	1			
September			16·67	0	1			
October			15·22	1	1			
November			16·47	0	1			
December			17·17	0	1			
January			16·70	0	1			
February			13·15	1	1			
March			17·77	0	1			
				2	12			
St. Hyacinthe—								
April			18·17	0	1			
May			18·18	0	1			
June			18·13	0	1			
July			18·21	0	1			
August			18·37	0	1			
September			18·14	0	1			
October			18·76	0	1			
November			18·61	0	1			
December			18·58	0	1			
January			18·86	0	1			
February			18·46	0	1			
March			18·22	0	1			
				0	12			

SESSIONAL PAPER No. 13

F—*Continued.*

Inspected during the year ended March 31, 1909—*Continued.*

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Test.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
0	24				0	24	24	0	24	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	

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APPENDIX

Return of the Illuminating Power and Purity of Gas

Inspection Offices.	Illuminating Power—Standard. 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Fredericton—								
April			16·80	0	1			
May			17·11	0	1			
June			16·94	0	1			
July								
August			17·24	0	1			
September			17·08	0	1			
October			16·98	0	1			
November			17·13	0	1			
December			16·76	0	1			
January			16·80	0	1			
February			16·14	0	1			
March								
				0	10			
St. John—								
April	18·60	18·53	18·56	0	2			25·08
May	18·02	17·65	17·83	0	2			24·76
June	18·16	17·90	18·03	0	2			20·16
July	18·16	17·73	17·94	0	2			19·88
August	18·26	17·64	17·95	0	2			22·69
September	18·39	17·17	17·78	0	2			24·41
October	17·78	17·64	17·71	0	2			20·85
November	18·09	17·13	17·61	0	2			22·58
December	17·52	17·48	17·50	0	2			23·89
January	17·59	17·22	17·40	0	2			23·76
February	16·99	16·94	16·96	0	2			21·26
March	17·60	17·08	17·36	0	3			22·54
				0	25			
Moncton—								
April			18·76	0	1			
May			19·83	0	1			
June			18·51	0	1			
July			19·10	0	1			
August			18·10	0	1			
September			18·65	0	1			
October			18·66	0	1			
November			18·40	0	1			
December			18·73	0	1			
January			19·07	0	1			
February			18·87	0	1			
March			19·34	0	1			
				0	12			

SESSIONAL PAPER No. 13

F—*Continued.*

Inspected during the Year ended March 31, 1909—*Continued.*

Cubic Feet. 25 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains					Sulphuretted Hydrogen.			Remarks.
No. of Times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
										No test on account of thickness.
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
										No test, meter out of repair.
							10	0	10	
0	1			0·00	0	1	2	0	2	
0	1			0·00	0	1	2	0	2	
0	1			0·00	0	1	2	0	2	
0	1			0·00	0	1	2	0	2	
0	1			0·00	0	1	2	0	2	
0	1			0·00	0	1	2	0	2	
0	1			0·00	0	1	2	0	2	
0	1			0·00	0	1	2	0	2	
0	1			0·00	0	1	2	0	2	
0	1			0·00	0	1	2	0	2	
0	1			0·00	0	1	3	0	3	
0	12				0	12	25	0	25	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	ILLUMINATING POWER—STANDARD. 16 Candles.					SULPHUR PER 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Halifax—								
April			17·02	0	1			16·86
May			17·20	0	1			17·63
June			17·57	0	1			17·02
July			17·06	0	1			11·87
August			17·45	0	1			25·22
September			16·39	0	1			33·63
October			16·84	0	1			19·35
November			18·03	0	1			28·51
December			17·21	0	1			25·11
January			16·39	0	1			19·45
February			17·24	0	1			20·67
March			17·20	0	1			18·45
				0	12			
Yarmouth—								
April			17·58	0	1			
May			16·85	0	1			
June			17·10	0	1			
July			17·41	0	1			
August			17·41	0	1			
September			17·50	0	1			
October			17·10	0	1			
November			16·81	0	1			
December			17·64	0	1			
January			17·10	0	1			
February			17·10	0	1			
March			17·56	0	1			
				0	12			
Charlottown—								
April			17·04	0	1			
May			18·20	0	1			
June			18·69	0	1			
July			14·96	1	1			
August			17·59	0	1			
September			17·83	0	1			
October			19·81	0	1			
November			18·00	0	1			
December			16·54	0	1			
January	16·99	14·21	15·81	3	7			
February	20·05	14·78	17·54	1	4			
March	23·01	17·94	20·50	0	4			
				5	24			

SESSIONAL PAPER No. 13

F—*Continued.*

Inspected during the Year ended March 31, 1909.

Cubic feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			Remarks.
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	
		Grains.	Grains.	Grains.						
0	1						1	0	1	
0	1						1	0	1	
0	1						1	0	1	
0	1						1	0	1	
0	1						1	0	1	
0	1						1	0	1	
0	1						1	0	1	
0	1						1	0	1	
0	1						1	0	1	
0	1						1	0	1	
0	1						1	0	1	
0	1						1	0	1	
0	12						12	0	12	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							12	0	12	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							0	7	7	
							0	4	4	
							1	3	4	
							10	14	24	

APPENDIX

Return of the Illuminating Power and Purity of Gas

Inspection Offices.	Illuminating Power—Standard, 16 Candles.					Sulphur per 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Winnipeg—								
April	18·19	16·87	17·65	0	8			
May	18·58	16·52	17·88	0	9			
June	18·10	16·70	17·32	0	8			
July	18·90	16·73	17·54	0	9			
August	17·28	16·43	16·98	0	8			
September	18·16	16·43	17·37	0	9			
October	18·10	16·58	17·18	0	9			
November	18·90	16·93	17·70	0	8			
December	18·12	16·84	17·47	0	8			
January	18·12	16·81	17·43	0	10			
February	18·03	16·87	17·27	0	8			
March	18·02	16·27	17·29	0	7			
				0	101			
Nanaimo—								
April								
May								
June								
July								
August								
September			16·91	0	1			
October			17·30	0	1			
November			16·24	0	1			
December			18·76	0	1			
January			16·09	0	1			
February			17·69	0	1			
March			17·21	0	1			
				0	7			
New Westminster—								
April								
May								
June								
July			19·21	0	1			
August			20·72	0	1			
September			19·33	0	1			
October			19·55	0	1			
November			19·72	0	1			
December			19·01	0	1			
January			19·15	0	1			
February			19·07	0	1			
March			18·89	0	1			
				0	9			

SESSIONAL PAPER No. 13

F—*Continued.*

Inspected during the Fiscal Year ended March 31, 1909.

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	Remarks.
		Grains.	Grains.	Grains.						
							8	0	8	
							9	0	9	
							8	0	8	
							9	0	9	
							8	0	8	
							9	0	9	
							9	0	9	
							8	0	8	
							8	0	8	
							10	0	10	
							8	0	8	
							7	0	7	
							101	0	101	
							3	0	3	Photometer out of order.
							1	0	1	
							1	0	1	" "
							1	0	1	" "
							1	0	1	" "
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							14	0	14	
										No. test made.
										" "
										" "
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							9	0	9	

9-10 EDWARD VII., A. 1910

APPENDIX

RETURN of the Illuminating Power and Purity of Gas

INSPECTION OFFICES.	ILLUMINATING POWER.—STANDARD. 16 Candles.					SULPHUR PER 100 Allowance—		
	Highest.	Lowest.	Average.	No. of times below Standard.	No. of Tests.	Highest	Lowest.	Average
	Candles.	Candles.	Candles.			Grains.	Grains.	Grains.
Vancouver—								
April			16·50	0	1			
May			16·75	0	1			
June			16·50	0	1			
July			17·00	0	1			
August	17.00	16.50	16·75	0	2			
September	17.50	16.50	16·93	0	4			
October	17.00	16.04	16·63	0	6			
November	17.40	16.00	16·60	0	8			
December	18.04	16.35	17·26	0	8			
January	18.18	16.00	16·98	0	10			
February	18.40	16.00	16·90	0	8			
March	16.60	16.00	16·37	0	8			
				0	58			
Victoria—								
April								
May			17·38	0	1			
June			17·30	0	1			
July			17·05	0	1			
August			17·13	0	1			
September								
October			16·80	0	1			
November								
December								
January								
February			17·60	0	1			
March								
				0	6			

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

SESSIONAL PAPER No. 13

F—*Concluded.*

Inspected during the year ended March 31, 1909.

Cubic Feet. 35 Grains.		Ammonia per 100 Cubic Feet. Allowance—4 Grains.					Sulphuretted Hydrogen.			
No. of times in excess of allowance.	No. of Tests.	Highest.	Lowest.	Average.	Times in excess of allowance.	No. of Tests.	No. of times absent.	No. of times present.	No. of Tests.	Remarks.
		Grainz.	Grains.	Grains.						
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							2	0	2	
							4	0	4	
							6	0	6	
							8	0	8	
							8	0	8	
							10	0	10	
							8	0	8	
							8	0	8	
							58	0	58	
										No test made.
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
							1	0	1	
										Gas apparatus undergoing repairs
							1	0	1	
										No. test made.
							6	0	6	

W. J. GERALD,
Deputy Minister.

APPENDIX G

STATISTICS of Gas Meters presented for Verification, Verified after First Inspection and Rejected for the year ended March 31, 1907.

	Number of Meters presented for Verification.	Kind.		Number on which Errors were found to be			Number after Verification.			Rejected.			Cause of Error and Remedy.	
		Wet.	Dry.	Correct.	Fast.	Slow.	Correct.	Fast.	Slow.	Corrected.	Fast.	Slow.	Vexatious.	Inadvertent.
[illegible]														
[illegible]														
[illegible]													

APPENDIX H.

STATEMENT of Electric Light Inspection, Expenditures and Revenues, for the Fiscal Year ended March 31, 1909,

Districts.	Inspectors.	Expenditures.						Revenues
		Salaries.	Special Assistance	Rent.	Travelling Expenses.	Sundries.	Total.	
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Belleville	Johnson, Wm.	657 23		81 25	380 44	50 15	1,169 07	1,387 25
	Fraser, Harold							
Hamilton	McPhie, D				116 95		116 95	2,818 25
London	Nash, A. F				200 35	7 75	208 10	1,831 75
Ottawa	Roche, H. G				513 75		513 75	3,314 00
Toronto	Johnstone, J. K		651 59		668 80	104 46	1,424 85	8,568 00
	Ontario.	657 23	651 59	81 25	1,880 29	162 36	3,432 72	17,919 25
Montreal	Aubin, V		294 28		41 65	14 29	260 22	9,787 00
Quebec	LeVasseur, N				55 01	81 77	136 78	544 00
Sherbrooke	Simpson, A. F				123 95	8 25	132 20	384 25
St. Hyacinthe	Provost, J. E	300 00			177 15	3 50	480 65	458 50
Three Rivers	Robitaille, G. W	500 00		60 00	48 60	20 12	628 72	274 50
	Quebec.	800 00	294 28	60 00	446 36	127 93	1,638 57	11,448 25
St. John, N.B	Wilson, J. E				208 15	9 71	217 86	1,550 75
Halifax, N.S	Cotter, W. F				417 77	5 10	422 87	1,821 50
Charlottetown, P.E.I.	Bell, J. H				43 55	59 60	103 15	359 00
Winnipeg	Megness, R.	300 00			73 85		373 85	3,410 50
Edmonton, Alta	Stott, Jas.	1,214 99	75 00	315 00	113 30	61 35	1,789 64	2,107 00
Vancouver	Miller, J. E	249 99			103 20	23 22	376 41	3,809 75
Victoria	Jones, R				18 75	10 30	29 05	1,453 25
	British Columbia	249 99			121 95	33 52	405 46	5,263 00
Dawson, Yukon	McDonald, J. F.	500 00					500 00	
Chief Electrical Engineer		2,439 69	94 58		368 48	628 85	3,531 60	
General Contingencies						5,691 80	5,691 80	
Printing						252 75	252 75	
Stationery						149 08	149 08	
	Grand Totals	6,171 80	1,025 45	456 25	3,673 70	7,182 05	18,509 35	43,989 25

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

W. J. GERALD,
Deputy Minister.

APPENDIX I.

STATEMENT showing the number of Electric Meters Verified, Rejected and Verified after first rejection for the Fiscal Year ended March 31, 1909.

Districts.	Presented for verification.	Verified as coming within the error tolerated by law.			Rejected.			Verified after first rejection.			Totals.	
		Correct.	Fast.	Slow.	Unsound.	Fast.	Slow.	Correct.	Fast.	Slow.	Verified.	Rejected.
Belleville	1,174	665	199	310	....	....	....	....	....	....	1,174	.....
Hamilton	2,561	922	410	1,228	....	1	....	....	....	....	2,560	1
London	1,563	769	423	360	1	8	2	....	....	....	1,552	11
Ottawa	3,990	978	1,502	1,475	34	1	....	....	....	....	3,955	35
Toronto	6,654	2,032	2,788	1,796	....	19	19	....	....	....	6,616	38
Montreal	7,524	2,556	4,746	214	....	4	4	....	....	....	7,516	8
Quebec	643	378	202	63	....	....	....	....	....	....	643	.....
Sherbrooke	437	216	124	97	....	....	....	....	....	....	437	.....
St. Hyacinthe	391	98	203	89	....	1	....	....	....	....	390	1
Three Rivers	260	155	52	53	....	....	....	....	....	....	260	.....
St. John	1,152	548	316	285	....	3	....	....	....	....	1,149	3
Halifax	1,751	1,711	11	10	7	6	6	....	....	....	1,732	19
Charlottetown	334	135	118	72	6	....	3	....	....	....	325	9
Winnipeg	2,910	1,854	420	636	....	....	....	....	....	....	2,910	.....
Calgary	2,151	893	559	699	....	....	....	....	....	....	2,151	.....
Vancouver	3,797	663	1,437	1,697	....	....	....	....	....	....	3,797	.....
Victoria	1,709	1,139	263	307	....	....	....	....	....	....	1,709	.....
Grand totals	39,001	15,712	13,773	9,391	48	43	34	....	....	....	38,876	125

W. J. GERALD,
Deputy Minister

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

APPENDIX J

STATEMENT showing the Electric Light Companies registered under the Electric Light Inspection Act, during the year ended March 31, 1909.

Districts.	Name of Company.	Serial Number.	Certificate by Whom Issued.	Certificate for Fiscal Year.	Number of Lamps.		
					Arc.	Incandescent.	Totals.
Belleville	The Corporation of Picton	1	C.I.R., Belleville	1908-09	41	6,300	6,710
	The Frankford Electric Light Co., Ltd	2	"	"	.....	390	390
	The Trenton Electric and Water Co., Ltd. Trenton and Belleville	3	"	"	65	13,427	14,077
	The Marmora Electric Co., Ltd	4	"	"	.....	766	766
	The Corporation of Madoc	5	"	"	12	1,200	1,320
	Fair & Sargent, Bancroft	6	"	"	.....	600	600
	W. P. Niles, Wellington	7	"	"	18	1,000	1,180
	The Tweed Electric Light and Power Co	8	"	"	7	1,200	1,270
	St. Lawrence Power Co., Ltd., Mille Roches	1	C.I.R., Cornwall	1908-09	230	900	3,200
	The Vankleek Hill Electric Light Co., Ltd	2	"	"	4	1,420	1,460
	Corporation of the Town of Alexandria	3	"	"	3	1,500	1,530
	Stormont Electric Light and Power Co., Cornwall	4	"	"	16	2,690	2,850
	Joseph Bishop & Son, Crysler	5	"	"	.....	400	400
	Hawkesbury Electric Light and Power Co., Ltd	6	"	"	4	2,343	2,322
	The Benjamin Manufacturing Co. of Yarker, Ltd	1	C.I.R., Kingston	1908-09	.....	300	300
	A. A. Connoley, Yarker	2	"	"	.....	125	125
	School of Mining, Kingston	3	"	"	13	125	255
	Corporation of the City of Kingston	4	"	"	150	8,400	9,900
	Corporation of Napanee	5	"	"	40	1,800	2,200
	Port Hope Electric Light and Power Co., Ltd	1	C.I.R., Peterborough	1908-09	36	2,300	2,660
	The Cobourg Utilities Corporation, Ltd	2	"	"	31	5,000	5,310
	Geo. H. Davidson, Brighton	3	"	"	.....	600	900
	Peterboro Light and Power Co., Ltd	4	"	"	210	22,500	24,900
	Fowlds Co., Ltd. Hastings	5	"	"	13	800	930
	The Board of Water, Light and Power Commission, Fenelon Falls	6	"	"	14	1,518	1,658
	The Light, Heat and Power Co., Ltd., Lindsay	7	"	"	96	12,000	12,960
	W. C. Harrison, Norwood	8	"	"	13	700	830
	The Corporation of the Town of Campbellford	9	"	"	37	2,564	2,934
	D. J. Galbraith, Newcastle	10	"	"	.....	400	400

APPENDIX J—*Continued.*

STATEMENT showing the Electric Light Companies registered under the Electric Light Inspection Act, during the year ended March 31, 1909—*Continued.*

Districts.	Name of Company.	Serial No.	Certificate by whom issued.	Certificate for Fiscal Year.	Number of Lamps.		
					Arc.	Incandescent.	Totals.
Belleville	Otonabee Power Co., Ltd., Peterboro'	11	C. I. R., Peterborough	1908-09	20	12,000	12,200
	The Havelock Electric Light and Power Co., Ltd	12	"	"	13	1,150	1,280
	The Lakefield Electric Light Co	13	"	"	8	1,380	1,380
	Bobcaygeon Electric Light Commission	14	"	"	22	930	1,150
	J. H. Goodrich and G. M. Peebles, Colborne	15	"	"		800	800
	Stephenson Bros., Omemee	16	"	"		400	400
	Davidson & Harrington, Millbrook	17	"	"	6	400	460
	Bowmanville Electric Light Co., Ltd	18	"	"	17	1,700	1,870
	Water and Light Commissioners, Prescott	1	C.I.R., Prescott	1908-09	10	4,000	4,100
	The Brockville Light and Power Department	2	"	"	99	5,000	5,990
	Kemptville Milling Co Ltd	3	"	"		1,500	1,500
	Gananoque Electric Light and Water Supply Co., Ltd	4	"	"	25	1,500	1,750
	Morrisburg Electric Light and Power Co	5	"	"		3,000	3,000
	Merrickville Electric Light and Power Co	6	"	"	1	475	485
	Municipality of the Village of Iroquois	7	"	"	13	1,026	1,156
	Cardinal Electric Light Co., Ltd	8	"	"		1,500	1,500
	The Westford Electric Light and Milling Co., Ltd	9	"	"		653	653
	Frank Elliott, Winchester	10	"	"		500	500
Hamilton	Simcoe Gas and Water Co., Ltd	1	C.I.R., Brantford	1908-09	30		300
	Corporation of the Town of Paris	2	"	"	35	2,500	2,850
	Western Counties Electric Companies, Brantford	3	"	"	300	25,000	28,000
	Tillsonburg Electric Light Works	4	"	"	5	2,850	2,900
	The Brantford Street Railway Co	5	"	"		150	150
	Herbert Webster, Norwich		"	"		1,671	1,671
	James Munro, Embro	7	"	"		430	430
	Woodstock Water and Light System	8	"	"	172	8,000	9,726
	The Ingersoll Electric Power and Light Co., Ltd	9	"	"	51	3,040	3,550
	Delhi Light and Power Co., Ltd	10	"	"		700	700
	The Hamilton Cataract Power, Light and Traction Co., Ltd	1	C. I. R., Hamilton	1908-09		500	500
	The Hamilton Electric Light and Power Co., Ltd	2	" "	"	650	106,000	112,500
	The Electric Power and Manufacturing Co., Ltd., Hamilton	3	" "	"		200	200
	The Dundas Electric Co., Ltd	4	" "	"	5	3,141	3,191

	Dunnville Electric Light Co., Ltd	1	C. I. R., St. Catharines.	1908-09	14	1,760	1,900
	Corporation of the Town of Niagara Falls	2	" "	"	87	12,000	12,870
	Corporation of the Town of Thorold	3	" "	"	28	1,700	1,980
	Grimsby Electric Plant	4	" "	"		2,496	2,496
	Hamilton Cataract Power, Light and Traction Co., Ltd., Beamsville	5	" "	"		1,132	1,132
	The Maple Leaf Rubber Co., Ltd., Port Dalhousie	6	" "	"	15	1,152	1,302
	Corporation of the Town of Niagara	7	" "	"		700	700
	Welland Electrical Co.	8	" "	"		2,000	2,000
	The Ontario Distributing Co., Ltd., Niagara Falls	9	" "	"		200	200
	Merritton Electric Light Co.	10	" "	"	23	800	1,030
	The Lincoln Electric Light and Power Co., St. Catharines	11	" "	"	127	15,000	16,270
London	The London Electric Co., Ltd	1	C. I. R., London.	1908-09	400	43,953	48,253
	The Petrolea Electric Light, Heat and Power Co., Ltd.	2	" "	"	39	3,253	3,643
	H. C. Baird, Son & Co., Ltd., Parkhill	3	" "	"	12	1,300	1,420
	L. and A. McTavish, Lucan	4	" "	"		800	800
	Hamilton & Front, Forest	5	" "	"	18	500	680
	Helena Costume Co., Ltd., London	6	" "	"		1,800	1,800
	Watford Electric Light Co.	7	" "	"	16	300	460
	Walter Mitchell, Port Stanley	8	" "	"		700	700
	The Sarnia Gas and Electric Light Co.	9	" "	"	115	7,000	8,150
	Alvinston Power Co., Ltd	10	" "	"	13	360	490
	Corporation of the Town of Strathroy	11	" "	"	20	4,200	4,400
	Light, Heat and Power Department, St. Thomas	12	" "	"	102	5,000	6,002
	The West Lorne Electric Co., Ltd.	13	" "	"	6	400	460
	The Dutton Electric Light Co., Ltd.	14	" "	"	5	953	1,003
	The Town of Aylmer	15	" "	"	12	1,800	1,920
	The Seaforth Electric Light, Heat and Power Co., Ltd	1	C. I. R., Stratford.	1908-09	17	1,300	1,470
	Corporation of the Town of Wingham	2	" "	"	21	4,000	4,240
	The Board of Water, Light and Heat Commissioners, St. Marys	3	" "	"	43	5,000	5,430
	Clinton Electric Light Co.	4	" "	"	32	1,200	1,520
	Thomas West, Hensall	5	" "	"		900	900
	William J. Palmer, Brussels	6	" "	"	9	500	590
	Snell & Zneffe, Exeter	7	" "	"	15	1,200	1,350
	John Patterson, Wroxeter	8	" "	"		480	480
	E. Livingston, Blythe	9	" "	"	7	500	570
	Stratford Gas Co.	10	" "	"	130	4,000	5,300
	Corporation of the Town of Mitchell	11	" "	"	26	1,500	1,760
	J. G. Field, Tavistock	12	" "	"		700	700
	Corporation of the Town of Goderich	13	" "	"	41	3,000	3,410
	J. A. Williams & Co., Zurich	14	" "	"		297	297
	The Corporation of the Town of Palmerston	15	" "	"	22	900	1,120
	Hiram Walker & Sons, Ltd., Walkerville	1	C. I. R., Windsor.	1908-09	30	5,000	5,300
	Sandwich, Windsor and Amherstburg Railway, Windsor	2	" "	"	1	15,000	15,010
	Kingsville Electric Light Co	3	" "	"		1,500	1,500
	The Corporation of the Town of Dresden	1	" "	"	6	1,350	1,410
	The Corporation of the Village of Thamesville	5	" "	"		1,150	1,150
	Leamington Light and Heat Co., Ltd.	6	" "	"	18	1,700	1,880
	Corporation of the Town of Bothwell	7	" "	"	15	456	606
	Thomas C. Vickerman, Tilbury	8	" "	"	13	1,200	1,330

APPENDIX J—*Continued.*

STATEMENT showing the Electric Light Companies registered under the Electric Light Inspection Act, during the Year ended March 31, 1909—*Continued.*

Districts.	Name of Company.	Serial No.	Certificate by whom Issued.	Certificate for Fiscal Year.	Number of Lamps.		
					Arc.	Incandescent.	Totals.
London	W. H. McMackon, Ridgetown	9	C. I. R., Windsor	1908-09	15	1,200	1,350
	Chatham Gas Co., Ltd	10	" "	"	25	10,000	10,250
	Amherstburg Electric Light, Heat and Power Co	11	" "	"		1,400	1,400
	Charles E. Naylore, Essex	12	" "	"	8	1,200	1,280
	Corporation of the Town of Blenheim	13	" "	"	17	1,400	1,570
	The Premier Electric Light, Heat and Power Co., Ltd., Wallaceburg	14	" "	"	31	1,645	1,955
	James A. Secord, Harrow	15	" "	"		700	700
	Wigle Bros., Windsor	16	" "	"		300	300
	The Corporation of the City of Windsor	17	" "	"	190		1,900
Ottawa	Corporation of the City of Ottawa	1	C. I. R., Ottawa	1908-09	809	52,716	60,806
	Ottawa Electric Co	2	" "	"	712	173,934	181,054
	Deschênes Electric Co., Ottawa	3	" "	"	8	2,700	2,780
	Hull Electric Co., Hull and Aylmer	4	" "	"	63	9,216	9,846
	Albert MacLaren, Buckingham	5	" "	"	45	2,850	3,300
	Corporation of the town of Sudbury	1	C. I. R., Perth	1908-09	35	3,400	3,750
	Canadian Copper Co., Copper Cliff	2	" "	"	49	4,153	4,643
	Pembroke Electric Light Co., Ltd	3	" "	"	45	5,700	6,150
	Smith's Falls Electric Power Co., Ltd	4	" "	"	80	5,000	5,800
	John D. McRae, Eganville	5	" "	"		1,200	1,200
	The Dowd Milling Co., Pakenham	6	" "	"		450	450
	Corporation of the town of Perth	7	" "	"	55		550
	Liskeard Light, Heat and Power Co., Ltd., New Liskeard	8	" "	"	22	1,850	2,070
	The Haileybury Electric Co	9	" "	"	18	1,900	2,080
	North Bay Light, Heat and Power Co	10	" "	"	33	4,000	4,330
	Corporation of the town of Almonte	11	" "	"	19	5,000	5,190
	The Arnprior Light and Power Co., Ltd	12	" "	"		3,800	3,800
	Mattawa Electric Light and Power Co., Ltd	13	" "	"	14	940	1,080
	Renfrew Electric Co., Ltd	14	" "	"		1,585	1,585
	Renfrew Power Co., Ltd	15	" "	"	54	3,000	3,540
	Canadian Electric and Water Power Co., Ltd., Perth	16	" "	"		4,500	4,500
	Sturgeon Falls Electric Light and Power Co., Ltd	17	" "	"	6	2,000	2,060
	Carleton Place Electric Light Co	18	" "	"	10	2,700	2,800
	The Citizens' Electric Co, Ltd., Smith's Falls	19	" "	"		1,800	1,800

Toronto	Waterloo Electric Light and Power Co	1	C. I. R., Guelph	1908-0	28	3,800	4,080
	Galt Gas Light Co., Ltd	2	" "	"	79	8,013	8,833
	E. W. B. Snider, St. Jacobs	3	" "	"		300	300
	Jacob Morley, New Hamburg	4	" "	"	21	1,300	1,510
	Fergus Electric Light Plant	5	" "	"	32	2,000	2,320
	John Howes, Harriston	6	" "	"	20	800	1,000
	Ratz Bros., Elmira	7	" "	"		700	700
	Board of Light and Heat Commissioners, Guelph	8	" "	"	111	11,494	12,604
	Drayton Electric Light	9	" "	"		513	513
	The Corporation of Mount Forrest	10	" "	"	17	2,400	2,570
	The Berlin Light Commissioners	11	" "	"	135	6,000	7,350
	Corporation of the town of Hespeler	12	" "	"		2,000	2,000
	The Light and Water Commissioners, Preston	13	" "	"	27	3,500	3,770
	Wenger Milling Co., Ayton	1	C. I. R., Owen Sound	1908-09		150	150
	Corporation of the town of Dundalk	2	" "	"		500	500
	The Georgian Bay Milling and Power Co., Ltd., Meaford	3	" "	"	25	2,950	3,200
	H. Cargill & Son, Cargill	4	" "	"		600	600
	H. Grutzner, Hanover	5	" "	"	17	1,809	1,979
	Sauble Falls Light and Power Co., Wiarton	6	" "	"	22	1,550	1,770
	Thomas Andrews, Thornbury	7	" "	"	10	600	700
	Walter Stewart & Son, Lucknow	8	" "	"	13	500	630
	Mildmay Electric Light Co	9	" "	"		300	300
	Chesley Electric Light Co	10	" "	"	25	1,300	1,550
	Walkerton Electric Light & Power Co., Ltd	11	" "	"	18	1,730	1,910
	The Sangeen Electric Light and Power Co., Ltd	12	" "	"		2,750	2,750
	Minnis Bros., Markdale	13	" "	"		1,200	1,200
	Corporation of the town of Collingwood	14	" "	"	63	3,000	3,630
	Paisley Electric Light Co	15	" "	"		900	900
	Georgian Bay Power Co., Ltd., Eugenia	16	" "	"		375	375
	Corporation of the town of Owen Sound	17	" "	"	81	14,274	15,084
	Crawford & McIntyre, Durham	18	" "	"	6	1,500	1,560
	Corporation of the town of Kincardine	19	" "	"	19	2,245	2,435
	Teeswater Electric Light Co	20	" "	"	8	400	480
	Toronto Electric Light Co., Ltd	1	C. I. R., Toronto	1908-09	1,650	250,000	266,500
	Penetanguishene and Midland Electric Street Railway Light, and Power Co., Ltd.	2	" "	"	19	1,800	1,990
	James Pickering, Shelburne	3	" "	"	17	1,400	1,570
	Corporation of the town of Barrie	4	" "	"	52	3,500	4,020
	Alexander Dobson, Beaverton	5	" "	"		800	800
	Aurora Electric Light Co	6	" "	"		550	550
	Joseph Knole, Staynor	7	" "	"		800	800
	Corporation of the Village of Beaton	8	" "	"		750	750
	Corporation of the Village of Acton	9	" "	"		1,200	1,200
	Hamilton Cataract Power, Light & Traction Co., Ltd., Burlington	10	" "	"	1	2,753	2,763
	John Philip, Grand Valley and Arthur	11	" "	"		1,800	1,800
	Georgetown Electric Light & Power Co., Ltd., Georgetown and Glenwilliams	12	" "	"	15	1,800	1,950
	Corporation of the Town of Whitby	13	" "	"	27	3,300	3,570
	The Knight Bros. Co., Ltd., Burk's Falls	14	" "	"	2	1,500	1,520
	Jonas Byer, Stouffville	15	" "	"		710	710

APPENDIX J—*Continued.*

STATEMENT showing the Electric Light Companies registered under the Electric Inspection Act, during the Year ended March 31, 1909—*Continued.*

Districts.	Name of Company.	Serial No.	By whom Certificate issued.	Certificate for Fiscal Year.	Number of Lamps.		
					Arc.	Incandescent.	Totals.
Toronto	Corporation of Gravenhurst	16	C. f. R., Toronto	1908-09	.....	2,500	2,500
	Brampton Electric Light Co.	17	" "	"	35	2,200	2,550
	Blind River Light, Heat & Power Co.	18	" "	"	.....	2,000	2,000
	Little Current Lumber Co.	19	" "	"	5	571	621
	The Monarch Supply Co., Ltd., Toronto	20	" "	"	20	500	700
	Sunderland Electric Power Co., Ltd	21	" "	"	.....	592	592
	Corporation of East Toronto	22	" "	"	34	500	834
	Corporation of Tottenham	23	" "	"	.....	500	500
	Corporation of Milton	24	" "	"	24	1,500	1,700
	Corporation of Bracebridge	25	" "	"	13	3,500	3,630
	W. H. Summerfeldt & Son, Sutton	26	" "	"	.....	420	420
	Corporation of Streetsville	27	" "	"	.....	490	490
	C. W. Watson, Orangeville	28	" "	"	.....	1,600	1,600
	T. J. Gould, Uxbridge	29	" "	"	12	1,170	1,290
	Cannington Electric Light Co.	30	" "	"	12	350	470
	Corporation of the Village of Port Perry	31	" "	"	2	650	670
	The Cataract Electric Light Co., Ltd., Orangeville	32	" "	"	29	600	890
	Corporation of the Village of Weston	33	" "	"	22	800	1,020
	Alliston Electric Light Co	34	" "	"	.....	1,500	1,500
	Simon Plews, Creemore	35	" "	"	.....	500	500
	J. C. McClelland & Co., Powassan	36	" "	"	.....	400	400
	Corporation of the Town of Huntsville	37	" "	"	4	2,700	2,740
	Corporation of the Town of Parry Sound	38	" "	"	14	4,000	4,140
	Corporation of the Village of Markham	39	" "	"	.....	500	500
	Corporation of New Market	40	" "	"	.....	3,000	3,000
	Corporation of the Town of Thessalon	41	" "	"	13	900	1,030
	The Stock Telephone, Light & Power System, West Toronto	42	" "	"	183	14,000	15,830
	Corporation of the Town of Midland	43	" "	"	25	4,500	4,750
	G. Copeland & Son, Elmvale	44	" "	"	20	600	800
	Togana Water & Light Co., Sault Ste. Marie	45	" "	"	219	11,417	13,607
	Corporation of the Town of Orillia	46	" "	"	50	8,007	8,507
	Oshawa Electric Light Co., Ltd	47	" "	"	20	3,000	3,200

Montreal.	Central Heat, Light & Power Co., Ltd., Montreal	1	C. I. R., Montreal	1908-09	65	8,651	9,301
	St. Jerome Power & Electric Light Co., Ltd.	2	"	"	"	1,000	1,000
	Beauharnois Electric Light Co	3	"	"	"	1,500	1,500
	The Corporation of the Village of Huntingdon	4	"	"	"	1,100	1,100
	Valleyfield Electric Co., Ltd	5	"	"	"	3,100	3,100
	John T. Ayers, Lachute	6	"	"	"	1,050	1,050
	Montreal Light, Heat & Power Co., Ltd.	7	"	"	"	3,961	452,213	491,923
	The Laurentian Water & Power Co., Ltd., Ste. Agathe des Monts	8	"	"	"	2	1,000	1,020
	La Compagnie d'Eclairage de Terrebonne	9	"	"	"	1	1,582	1,592
	Corporation of Westmount	10	"	"	"	150	21,000	22,600
	The Corporation of the Town of Lachine	11	"	"	"	72	3,000	3,720
	The Saraguay Electric Light & Power Co., Montreal	12	"	"	"		4,930	4,930
	Joseph Cyr, St. Canut	13	"	"	"		410	410
Quebec.	The Quebec Jacques Cartier Electric Co	1	C. I. R., Quebec	1908-09	650	60,000	66,560
	La Compagnie Hydraulique & Electrique de Lorette	2	"	"	"		1,300	1,300
	L. P. H. & Henri Grandbois, St. Casimir	3	"	"	"		350	350
	Quebec Railway Light & Power Co	4	"	"	"	227	67,954	70,224
	La Compagnie d'Electricite de Roberval	5	"	"	"	1	1,700	1,710
	Le Credit Municipal Canadien, Rimouski	6	"	"	"		1,866	1,866
	Basin Electric Light & Power Co., Ltd., Montmagny	7	"	"	"		1,800	1,800
	The Labrador Electric & Pulp Co., Murray Bay	8	"	"	"		3,473	3,473
	Compagnie Electrique de la Baie St. Paul	9	"	"	"		1,900	1,900
	Charles A. Julien, St. Raymond	10	"	"	"		460	460
	Charles A. Julien, Pont Rouge	11	"	"	"		320	320
	The Canadian Electric Light Co., Levis	12	"	"	"	33	11,334	14,664
	The Town of Fraserville	13	"	"	"	38	5,000	5,380
	La Compagnie Electrique St. Georges, Beauce	14	"	"	"		1,100	1,100
	La Compagnie Electrique du Bic	15	"	"	"		225	225
	La Compagnie des Eaux et de l'Electricite de Chicoutimi	16	"	"	"		5,000	5,000
Sherbrooke.	Richmond County Electric Co	1	C. I. R., Sherbrooke	1908-09		2,650	2,650
	La Compagnie Champoux, D'Israeli	2	"	"	"		900	900
	J. B. Parker, Dickville	3	"	"	"		150	150
	The Corporation of the town of Bromptonville	4	"	"	"		820	820
	Corporation of the town of Coaticook	5	"	"	"	25	4,000	4,250
	Great Northern Lumber Co. Ltd., Scotstown	6	"	"	"		250	250
	The Stanstead Electric Light Co	7	"	"	"	20	1,200	1,400
	Corporation of the Town of Magog	8	"	"	"		3,500	3,500
	J. A. Gaulin, Sawyerville	9	"	"	"		300	300
	Eastern Township Electric Co. North Hatley	10	"	"	"		1,900	1,900
	D. C. Horner & Son, West-Shefford	11	"	"	"		175	175
	Westbury Electric Light & Power System, East Angus	12	"	"	"		900	900
	R. H. & G. H. Gibson, Danville	13	"	"	"		900	900
	Sherbrooke Power, Light & Heat Co	14	"	"	"	100	26,000	27,000
	The Bromo Lake Electric Power Co., Waterloo	15	"	"	"		1,800	1,800
	The Corporation of the Village of Granby	16	"	"	"	40	3,000	3,400
	The Corporation of the Town of Windsor Mills	17	"	"	"		2,000	2,000
	La compagnie d'eclairage electrique du village de Megantic	18	"	"	"		1,000	1,000
	N. P. Tanguay, Weedon	19	"	"	"		400	400

APPENDIX J—*Continued.*

STATEMENT showing the Electric Light Companies registered under the Electric Light Inspection Act, during the Year ended March 31, 1909—*Continued.*

Districts.	Name of Company.	Serial No.	By whom Certificate issued.	Certificate for Fiscal year.	Number of Lamps.		
					Arc.	Incandescent.	Totals.
Sherbrooke	The Corporation of the village of Sutton	20	C. I. R., Sherbrooke	1908-09			*
St. Hyacinthe	La Compagnie de Gaz, Electricité & Pouvoir de St. Hyacinthe	1	C. I. R., St. Hyacinthe	1908-09	40	12,000	12,400
	Deslandes & Chevrotte, Acton Vale	2	" "	"		350	350
	M. S. Connell & Sons, Stanbridge East	3	" "	"		200	200
	The Arthabaska Water & Power Co., Victoriaville	4	" "	"		5,000	5,000
	La Fonderie de Plessisville	5	" "	"		2,800	2,800
	La Corporation de la ville de Drummondville	6	" "	"		1,000	1,000
	G. Poulin, Farnham	7	" "	"		1,500	1,500
	The St. John's Electric Light Co., Ltd	8	" "	"	16	5,000	5,160
	La Compagnie Electrique de Sorel	9	" "	"	36	6,000	6,360
	Nelson Buzzell, Cowansville	10	" "	"		450	450
	A. N. Dufresne, St. Césaire	11	" "	"		1,835	1,835
Three Rivers	La Corporation de la ville de Joliette	1	C. I. R. Joliette	1908-09	78	2,600	3,380
	Dion & Paradis, St. Roch de l'Achigan	2	" "	"		1,350	1,350
	The Laval Electric Co., Charlemagne	3	" "	"		1,000	1,000
	The Laval Electric Co., L'Assomption	4	" "	"		1,000	1,000
	The St. Maurice Light & Power Co., Shawinigan Falls	1	C. I R., Three Rivers	1908-09	10	3,500	3,600
	The North Shore Power Co., Three Rivers	2	" "	"	125	7,000	8,250
St. John	The St. John Railway Co	1	C. I. R., St. John	1908-09	666	30,000	36,660
	The Sackville Electric Light & Telephone Co., Ltd	2	" "	"	5	3,000	3,050
	A. & R. Loggie, Loggieville	3	" "	"		375	375
	Town of Newcastle	4	" "	"	26	2,800	3,060
	The Kent Electric Co., Ltd., Richibucto	5	" "	"		1,800	1,800
	The Corporation of Chatham	6	" "	"	8	3,000	3,080
	The Sussex Manufacturing Co., Ltd	7	" "	"	3	1,300	1,330
	The St. Stephen Electric Light Co	8	" "	"	49	2,011	2,501
	The Bathurst Electric Water Power Co., Ltd	9	" "	"	4	2,000	2,040

* About to begin operations.

St. John	The Fredericton Gas Light Co	10	"	"	"	38	5,500	5,880
	The City of Moncton Water & Light Department	11	"	5	"	99	8,000	8,990
	The Corporation of Campbellton Electric Light Department	12	"	"	"	50	2,000	2,500
	The Woodstock Electric Railway Light & Power Co	13	"	"	"	51	2,000	2,510
	The King Lumber Co., Ltd., Chipman	14	"	"	"	1	200	210
	C. M. Sherwood, Centreville	15	"	"	"	5	380	430
	The Dorchester Electric Light and Power Co., Ltd.	16	"	"	"	6	500	560
Halifax	Halifax Electric Tramway Co., Ltd	1	C. I. R., Halifax		1908-09	383	46,670	50,500
	Town of Annapolis Royal Electric Light Works	2	"	"	"		1,200	1,200
	Windsor Electric Light and Power Co., Ltd	3	"	"	"	4	3,000	3,040
	Logan & Co., Electric Light Works, Shubenacadie	4	"	"	"		340	340
	The Canada Electric Co., Ltd., Amherst	5	"	"	"	30	6,000	6,300
	Acadia Electric Light Co., Wolfville	6	"	"	"		1,900	1,900
	The Bridgetown Electric Light and Power Co., Ltd	7	"	"	"		850	850
	Edison Electric Light and Power Co. of Spring Hill, Ltd	8	"	"	"		1,900	1,900
	Kentville Electric Light and Power Co., Ltd	9	"	"	"	7	1,700	1,770
	Town of Parrsboro Electric Light Works	10	"	"	"		1,000	1,000
	The Milton Electric Light, Power and Manufacturing Co., Ltd	11	"	"	"		457	457
	John Daley, Digby	12	"	"	"		800	800
	Oxford Electric Co., Ltd	13	"	"	"		490	490
	The Yarmouth Street Railway Co., Ltd	14	"	"	"	1	1,200	1,210
	Board of Water Commissioners, Town of Mahone	15	"	"	"		500	500
	Chambers' Electric Light and Power Co., Ltd., Truro	16	"	"	"		8,000	8,000
	Dartmouth Gas Electric Light, Heating and Power Co., Ltd	17	"	"	"		3,000	3,000
	Lunenburg Gas Co., Ltd	18	"	"	"		2,200	2,200
	The Town of Bridgewater Electric Light Works	19	"	"	"		2,300	2,300
	Bear River and Digby Electric Light, Heating and Power Co., Ltd	20	"	"	"		485	485
	The Town of Liverpool Electric Light Works	21	"	"	"	25	1,950	2,200
	Corporation of the Town of Pictou	1	C. I. R., Pictou		1908-09	35	3,500	3,850
	Corporation of the Town of Glace Bay	2	"	"	"	6	9,000	9,060
	Sydney Mines Electric Co.	3	"	"	"	1	2,400	2,110
	Cape Breton Electric Co., Ltd., Sydney	4	"	"	"	91	18,000	18,910
	Cape Breton Electric Co., Ltd., North Sydney	5	"	"	"	28	3,619	3,899
	Antigonish Electric Co.	6	"	"	"		1,200	1,200
	New Glasgow Electric Co., Ltd	7	"	"	"	48	10,080	10,480
	Inverness Railway and Coal Co	8	"	"	"	8	675	755
	The Port Hood Richmond Railway and Coal Co., Ltd	9	"	"	"	1	500	510
	Acadia Coal Co., Ltd., Stellarton	10	"	"	"	13	611	771
	Nova Scotia Steel and Coal Co., Ltd., Trenton	11	"	"	"	51	600	1,110
	Sydney and Glace Bay Railway Co., Ltd	12	"	"	"		60	60
Charlottetown	Summerside Electric Co., Ltd	1	C. I. R., Charlottetown		1908-09	20	975	1,175
	Montague Electric Co., Ltd	2	"	"	"		150	150
	Charlottetown Light and Power Co., Ltd	3	"	"	"	115	10,000	11,150
Winnipeg	The Kaministiquia Power Co., Fort William	1	C. I. R., Port Arthur		1908-09			*
	Corporation of the City of Port Arthur	2	"	"	"	27	14,112	14,382

* For Power purposes only.

APPENDIX J—*Concluded.*

STATEMENT showing the Electric Light Companies registered under the Electric Light Inspection Act, during the Year ended March, 31, 1909—*Concluded.*

Districts.	Name of Company.	Serial No.	By whom Certificate issued.	Certificate for Fiscal Year.	Number of Lamps.		
					Arc.	Incandescent.	Totals.
Winnipeg	Corporation of the Town of Kenora	3	C. I. R., Port Arthur	1908-09	90	7,000	7,900
	Rat Portage Lumber Co., Ltd., Rainy River	4	" "	"	.....	300	300
	Rainy River Lumber Co., Ltd.	5	" "	"	23	291	521
	Corporation of the Town of Neepawa	1	C. I. R., Winnipeg	1908-09	19	2,660	2,850
	Corporation of the Town of Carberry	2	" "	"	16	1,600	1,760
	The Central Electric Co., Ltd., Portage la Prairie	3	" "	"	13	4,000	4,130
	The Brandon Electric Light Co., Ltd	4	" "	"	100	15,000	16,000
	The Corporation of the town of Dauphin	5	" "	"	20	3,500	3,700
	The Selkirk Electric Light & Power Co., Ltd	6	" "	"	2	1,600	1,620
	Winnipeg Electric Railway	7	" "	"	213	151,823	153,753
	Town of Morden	8	" "	"	. . .	1,200	1,200
	Corporation of the Town of Carman	9	" "	"	1	1,800	1,810
	The Turtle Mountain Milling Co., Boissevain	10	" "	"	.....	750	750
	D. E. Craig, Minnedosa	11	" "	"	5	2,000	2,050
Regina	The Corporation of the City of Moose Jaw	1	C. I. R., Moose Jaw	1908-09	41	7,000	7,410
	The Town of Battleford	2	" "	"	21	600	810
	George Collison, Estevan	3	" "	"	.....	780	780
	The City of Saskatoon	4	" "	"	28	4,000	4,280
	Townsend & Hutt, Milestone	5	" "	"	.....	280	280
	The City of Regina	6	" "	"	61	20,058	20,668
	The City of Prince Albert	7	" "	"	.....	4,200	4,200
	The town of Indian Head	8	" "	"	36	3,500	3,860
	The Moore Milling Co., Ltd., Qu'Appelle	9	" "	"	7	800	870
	Weyburn Machine & Electric Light Co., Ltd	10	" "	"	8	1,950	2,030
Edmonton	City of Strathcona	1	C. I. R., Calgary	1908-09	46	6,000	6,460
	City of Edmonton	2	" "	"	84	28,000	28,840
	The Western General Electric Co., Ltd., Red Deer	3	" "	"	15	1,960	2,110
	Lethbridge Electric Co., Ltd	4	" "	"	14	1,400	1,540
	Fort Electric Co., Ltd., Fort Saskatchewan	5	" "	"	5	1,200	1,250
	Blindman River Electric Power Co., Ltd., Lacombe	6	" "	"	15	850	1,000
	Calgary Water Power Co., Ltd	7	" "	"	14	12,000	12,140

	Corporation of the City of Calgary	8	"	"	"	140	21,694	23,094
	City of Wetaskiwin	9	"	"	"	17	1,500	1,670
	The Municipality of the Town of Macleod	10	"	"	"	15	1,200	1,350
Vancouver	Corporation of the City of Revelstoke	1	C. I. R., Vancouver.		1908 09.	5	2,000	2,050
	Corporation of the City of Vernon	2	"	"	"		1,900	1,900
	Armstrong Light & Power Co., Ltd	3	"	"	"	1	750	760
	The Crow's Nest Pass Electric Light & Power Co., Ltd. Fernie	4	"	"	"	1	3,449	3,459
	The Crows' Nest Pass Electric Light & Power Co., Ltd., Michel	5	"	"	"		1,100	1,100
	The Cranbrook Electric Light Co., Ltd	6	"	"	"	2	2,200	2,220
	Corporation of the City of New Westminster	7	"	"	"	135	14,000	15,350
	The Consolidated Mining & Smelting Co., Ltd., Trail	8	"	"	"	12	1,025	1,145
	Kootenay Electric Co., Ltd., Kaslo	9	"	"	"		750	750
	City of Kamloops	10	"	"	"		1,500	1,500
	Corporation of the City of Nelson	11	"	"	"	3	6,600	6,630
	British Columbia Electric Railway Co., Ltd., Ladner	12	"	"	"		1,365	1,365
	British Columbia Electric Railway Co., Ltd., Steveston	13	"	"	"		1,478	1,478
	British Columbia Electric Railway Co., Ltd., North Vancouver	14	"	"	"	41	3,449	3,859
	British Columbia Electric Railway Co., Ltd., Vancouver	15	"	"	"	997	192,130	202,100
	The Cascade Water Power & Light Co., Ltd	16	"	"	"	*	*	*
	The West Kootenay Power & Light Co., Ltd., Rossland	17	"	"	"	38	5,000	5,380
	Sandon Water Works & Light Co	18	"	"	"	2	428	448
	The Daly Reduction Co., Ltd., Hedley	19	"	"	"		275	275
	Greenwood City Waterworks Co.	20	"	"	"	7	2,000	2,070
	The Ashcroft Water, Electric & Improvement Co	21	"	"	"		500	500
	Corporation of the City of Grand Forks	22	"	"	"	13	1,800	1,930
	Corporation of the City of Kelowna	23	"	"	"	21	1,500	1,710
	Summerland Development Co., Ltd	24	"	"	"		625	625
Victoria	Cumberland Electric Light Co. Ltd	1	C. I. R., Victoria		1908 09.		1,670	1,670
	Nanaimo Electric Light Co.	2	"	"	"	57	4,100	4,670
	British Columbia Electric Railway, Co., Ltd., Victoria	3	"	"	"	85	69,886	70,736
	Victoria Electric Co	4	"	"	"		304	304
Dawson	Dawson Electric Light & Power, Co., Ltd	1	C. I. R., Dawson.		1908 09.		5,000	5,000

* Plant not in operation at the present time.

INLAND REVENUE DEPARTMENT,
OTTAWA, JUNE 18, 1909.

W. J. GERALD,
Deputy Minister.

APPENDIX K.

STATEMENT showing amount of Electrical Energy, generated for export and for consumption in Canada, under the authority of the Electricity and Fluid Exportation Act, for the fiscal year ended March 31, 1909.

Name of Contractor.	Place of Business.	Units Generated for Export.	Units Generated for Consumption in Canada.	Total Output of Generating Station or other source.	License Fees.
		Kw. hours.	Kw. hours.	Kw. hours.	
Canadian Niagara Power Co.	Niagara Falls, Ont.	221,927,240	5,405,760	227,333,000	50 00
Electrical Development Co. of Ontario, Ltd.	"	4,680,500	85,515,400	90,195,900	50 00
Maine & New Brunswick Electrical Power Co., Ltd.	Aroostook Falls, N.B.	841,764	3,940	845,704	25 00
Ontario Power Co. of Niagara Falls	Niagara Falls, Ont.	131,833,782	44,150,580	175,984,362	50 00
	Total	359,283,286	135,075,680	494,358,966	175 00

W. J. GERALD,
Deputy Minister.

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

APPENDIX L.

STATEMENT showing amount of Natural Gas, produced for export and for consumption in Canada, under the authority of the Electricity and Fluid Exportation Act, for the fiscal year ended March 31, 1909.

Name of Contractor.	Place of Business.	Units Generated for Export.	Units Generated for Consumption in Canada.	Total Output of Generating Station or other source.	License Fees
		Cub. ft.	Cub. ft.	Cub. ft.	
The Provincial Natural Gas & Fuel Company of Ontario, Limited.	Bridgeburg, Ont.	387,019,000	462,707,000	849,726,000	50 00

W. J. GERALD,
Deputy Minister.

INLAND REVENUE DEPARTMENT,
OTTAWA, June 18, 1909.

REPORTS, RETURNS AND STATISTICS

OF THE

INLAND REVENUES

OF THE

DOMINION OF CANADA

FOR THE YEAR ENDED MARCH 31

1909

PART III

ADULTERATION OF FOOD

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1909

[No. 14—1910.]

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REPORT

OF THE

DEPUTY MINISTER OF INLAND REVENUE.

INSPECTION OF FOODS, DRUGS AND FERTILIZERS.

To the Hon. Wm. Templeman,
Minister of Inland Revenue.

Sir,—I have the honour to submit herewith the reports of the official analysts of the Dominion for the year ending March 31, 1909.

Only one sample was analyzed outside the central laboratories of Ottawa, viz.:—

Description.	Genuine.	Doubtful.	Adulterated.	Total.
Lard			1	1

The following statement shows the work done by the Chief Analyst and staff at Ottawa, for the year ending March 31, 1909.

Description.	Genuine	Doubtful.	Adulterated.	Sold as Com.	Total.
Tincture Iodine	60	0	15	0	75
Glacial Acetic Acid	34	11	0	0	45
Oil of Lemon					45
Maple Syrup	61	4	13	6	84
Con. Commercial Feeding Stuffs					142
Maple Products	124	1	14	3	142
Paris Green	149	1	0	0	150
Olive Oil	64	3	15	0	82
Native Wines					101
Fertilizers	97	19	3	0	119
Ice Cream					145
Pickles					149
Canned Meats					76
Ground Pepper	216	13	69	0	298
Unfermented Grape Juice					70
Sp. Ætheris Nitrosi	28	0	49	0	77
Tr. of Opium					31
Cider					62
Butter	292	3	0	0	295
Cheese					237
Ground Coffee	391	13	45	0	449
Ground Cloves	74	68	(3 lost)	0	142
Baking Powders					158
Liquor Arsenicalis					75
Mustard					76
Table Syrups					75
Spirit of Camphor	62	8	4	0	74
Tincture of Ginger	62	9	4	0	75
Total					3,549

In addition to the above, 824 samples of miscellaneous character (detailed in the Report of the Chief Analyst) have been analyzed, making the total number 4,373 samples, as against 3,202 for the preceding year 1907-1908.

I desire to draw your attention to the remarks, contained in the report of the Chief Analyst, respecting the difficulty of establishing proper standards for foods.

The subject, while most important, is a difficult one and ample consideration must be given this matter. The establishment of unjust, or unworkable standards would have a most injurious effect on trade and it is therefore the wisest course to proceed with due caution. I am confident that the establishment of proper and just standards will be made at a fairly early date.

The Fertilizers Act, passed last Session of Parliament and which comes into force upon January 1st, 1910, will, it is believed, prove to be more workable than the one now upon the statute books. Under its provisions the interests of the Agricultural community will be better served than heretofore, due to the fact that every brand of fertilizer offered for sale shall bear a registration number assigned by the department and which number must be legibly affixed by the manufacturer or agent to every package of fertilizer sold. In addition to this registration number, every such package must have printed thereon the name of the brand, the name and address of the manufacturer and the analysis of the preparation as guaranteed by said manufacturer.

The provisions of the Act respecting Commercial feeding stuffs, which also comes into effect upon the 1st January, 1910, are almost identical with those of the Fertilizers Act and will no doubt tend to prevent the sale of practically worthless products.

I have the honour to be, sir,
Your obedient servant,

W. J. GERALD,
Deputy Minister.

INLAND REVENUE DEPARTMENT,
OTTAWA, July 9, 1909.

REPORT OF THE CHIEF ANALYST.

Ottawa, July 8, 1909.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I beg to report as follows upon the work of this laboratory, for the fiscal year ending March 31, 1909.

During this period, 3,552 samples were collected by our inspectors. The results of analysis of these are detailed in Bulletins 152 to 179, both inclusive, as follows:—

Number of Bulletin.	Subject.	Number of Samples.
152	Tincture of Iodine	75
153	Glacial Acetic Acid	45
154	Oil of Lemon	45
155	Maple Syrup	84
156	Concentrated Commercial Feeding Stuffs	142
157	Maple Products	142
158	Paris Green	150
159	Olive Oil	82
160	Native Wines	101
161	Fertilizers As Sold 1908	119
162	Ice Cream	145
163	Pickles	149
164	Canned Meats	76
165	Ground Pepper	298
166	Unfermented Grape Juice	70
167	Spiritus Ætheris Nitrosi	77
168	Tincture of Opium	31
169	Cider	62
170	Butter	295
171	Cheese	237
172	Ground Coffee	449
173	Ground Cloves	142
174	Baking Powders	158
175	Liquor Arsenicalis (Fowler's Solution)	75
176	Mustard	76
177	Table Syrups	75
178	Spirit of Camphor	74
179	Tincture of Ginger	75
	Total	3,549

In addition to the above there have been performed the following occasional analyses, during the year:—

Standard Fertilizers	199
Acetic Acid	12
Alcohol	4
Baking Soda	2
Beer	24
Butter	12

Camphor Spirit	1
Chocolate	1
Cider	1
Cloves	3
Coal Oil	7
Cognac	1
Condensed Milk	2
Cream Tartar	7
Diamalt	1
Fertilizers	12
Floor Cleaner	1
Fruit (canned)	3
Fusel Oil	6
Honey	1
Ice-Cream	1
Jams	4
Lard	15
Liniment	1
Linseed Oil	1
Liquors	2
Maple Sugar	2
Maple Syrup	16
Milk	49
Mustard	1
Nux Vomica Extract	1
Olive Oil	6
Peas	3
Pemmican	1
Pepper	7
Pickles	4
Porter	2
Preserves	4
Raspberry Pulp	1
Salt	2
Sodium Nitrate	1
Starches (Laundry)	4
Stearin	1
Tallow	1
Tincture Iodine	3
Triangle Baby's Food	1
Turpentine	1
Viavi Capsules	1
Vinegar	353
Wax Candles	4
Water	19
Whiskey	4
Wine	4
Wood alcohol	2
Yeast	2
	824

The total number of analyses made is therefore 4,373. The following solutions have been prepared and supplied for the use of Excise officers, in vinegar testings:—

Normal Soda Solution	65 winchesters
Standard Phenolphthalein	13 bottles
Standard Sulphuric Acid	4 bottles

About 35,000 bulletins have been addressed, from this office, to the different parts of the Dominion.

Extended researches on tobacco were carried out and reported to you.

The preliminary arrangements for bringing into operation the Proprietary or Patent Medicine Act, (which Act took effect on the first day of April) have entailed a considerable amount of work upon this branch; and the whole time of one of my assistants has been given to this work for some months past.

The matter of revision of the Fertilizers Act; and the preparation of an Act to provide for the inspection of Cattle Foods, have required much time and labour. It is satisfactory to note that the Acts referred to will come into operation in January, 1910.

The question of defining standards for foods has been referred to in all recent reports, and hopes have been held out, from year to year, that some definite action might be expected. The matter has proved to be a very difficult one to deal with. All nations feel its importance, and some have attempted legislation which experience has shown to be impracticable. I have realized the necessity of well considered action; and have been particularly anxious not to advise rash measures in a matter which, by injudicious precipitancy must seriously hamper trade, and bring discredit upon honest efforts for food control.

In order to afford a starting point for definite action, I prepared a draft of standards, based largely upon similar attempts in other countries, but modified to a considerable extent by my own experience. This I submitted to the Acting Deputy Minister on the 2nd March, with the following letter:—

Dear Sir,—I beg to refer you to File 93949 (L. 46947) and to Mr. Gerald's letter of the 24th January, 1908. To this I replied on the 27th January, 1908.

"Since that date I have constantly kept in view the recommendation of standard definitions for Foods, to form the basis of an Order in Council under Section 26 of the Adulteration Act. It is quite apparent that, since the decision given by Judge Trenholme of Montreal, quashing a conviction in maple sugar case (*See* 'Star' of Nov. 5, 1908) we need not expect to get any convictions under the Act, until such standards are fixed.

"The scheme now submitted is based upon Food Standards as defined by the Department of Agriculture at Washington, but modified by my own experience, and by such recorded work done in England, France and Germany as I have had access to. The list is not complete, and I may specially mention the absence of spirituous liquors and baking powders.

"Nor can I assert that the definitions as given, although prepared with every possible care, are to be taken as beyond criticism. Indeed, as already pointed out to the Deputy Minister, I consider that this subject is of such importance as to justify the naming of experts who should share with me the responsibility of dealing with it. I have taken the liberty of suggesting Dr. Ellis, of Toronto, and Dr. Donald, of Montreal, as suitable members of the board so constituted.

"I shall be pleased to have your further instructions regarding the matters herein presented."

Yours truly,

A. McGILL,
Chief Analyst.

On the 16th March, the following letter was also addressed to the Acting Deputy Minister, by me:—

"Dear Sir,—In mine of the 2nd instant, referring to Food Standards, I inclosed a draft scheme of definitions, to form the basis for an Order in Council, under Sec. 26 of the Adulteration Act.

"It is my conviction that a great deal of friction may be avoided by submitting advance copies of this scheme to manufacturers of food products who will be affected by it.

"I would respectfully ask your sanction to my doing this, with the view of obtaining critical opinions and suggestions from such manufacturers; as well as personally interviewing representative men and associations, for the purpose of giving explanations and reasons for departmental action in the matter of food standards.

"Certain classes of foods are in their nature, capable of absolute definition, such as meats, vegetables, sugars, &c. But manufactured articles, such as sausage, lard, condensed milk, preserves, syrups, flavouring extracts, &c., must be defined with reference to local conditions. The same is true of spices, which are imported in a crude state, and this condition necessarily influences the nature of the prepared spice, to some extent. On these matters, the manufacturer has a right to be heard.

Yours truly,

A McGILL,
Chief Analyst.

These references will show the ground I have for hoping that, before another year has passed, we shall have made some progress in the actual adoption of legal food standards. The work is quite too large to admit of completion within a single year; but will be considered in sections, and with due regard to all the interests involved, The Hon. the Minister of Inland Revenue having authorized the nomination of Prof. W. H. Ellis, of Toronto, and Dr. J. T. Donald, of Montreal, to form along with myself, a Board of Reference in this matter, as suggested in my letter of the 2nd March, I venture to hope that the work may proceed without further delay.

Copies of Bulletins 151 to 179 (inclusive) issued during the past year, are appended to this report.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

HALIFAX, N.S. June 1, 1909.

The Deputy Minister of Inland Revenue
Ottawa.

SIR,—I have the honour to submit my Annual Report on samples of Food, &c., analyzed by me during the year ending 31st March, 1909.

No samples were received for analysis.

I have the honour to be, sir,
Your obedient servant,

MAYNARD BOWMAN.

MONTREAL, May 28, 1909.

The Deputy Minister,
Inland Revenue Department, Ottawa.

SIR,—I beg to report that during the fiscal year ending March 31st, 1909, I have not analyzed any samples for your department.

I am,
Your obedient servant,

J. T. DONALD.

SESSIONAL PAPER No. 14

Translation.

OTTAWA, May 31, 1909.

Mr. ALPHONSE LEMOINE,
Assistant Chief Analyst,
Ottawa.

SIR,—I have to inform you that not having received any sample during the fiscal year 1908 09, I have not, consequently, any report to make to the Minister of Inland Revenue.

Your obedient servant,

F. X. VALADE, M.D.,
Public analyst for District of Kingston.

OFFICE OF THE PUBLIC ANALYST,

VICTORIA, B.C., June 17th, 1909.

The Minister of Inland Revenue,
Ottawa.

SIR,—I have the honour to present a tabulated statement showing the result of the examination of the sample submitted by the department during the year ending March 31, 1909.

Received April 6th, 1908. Reported April 18th, 1908.

Sample.	Genuine.	Adulterated.	Total.
Lard	0	1	1

I have the honour to be, sir,
Your obedient servant,

C. J. FAGAN,
Public Analyst.

APPENDIX A.

BULLETIN No. 151—STANDARD FERTILIZERS, 1908.

Ottawa, April 14, 1908.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I have the honour to report upon 199 samples of Agricultural Fertilizers, registered for sale in Canada in 1908.

The appended table is self explanatory, and contains a statement of the guaranteed content of each sample, as well as the content found by analysis in this laboratory.

The Fertilizers Act (Chap. 132, R. S. 1906) Section 4, requires the publication of the "relative value of each fertilizer calculated from its contents in fertilizing ingredients, at their current market value."

The following values have been used in calculating this relative value :—

	Cents per lb.
Nitrogen, in salts of ammonia, or nitrates, as well as in compound fertilizers	17
Organic nitrogen, in ground bone, fish blood or tankage	16
Phosphoric acid :	
Soluble in water	6
Soluble in 1 per cent citric acid solution	5½
Insoluble in Thomas phosphate powder, bone, fertilizers generally	1½
Potash, in compound fertilizers	5

Owing to the fact that the nitrogen in most of the compound fertilizers, is derived in part from organic but chiefly from inorganic materials, its value has been, in most cases taken at 17 cents per lb. It is believed that the error so introduced, is small enough to be negligible.

The valuation of the phosphoric acid involves greater difficulty. Many samples are accompanied by statements of the total phosphoric acid, without distinguishing between soluble and insoluble acid. In such cases it has been impossible to place a value based on the manufacturer's or importer's guarantee ; but the relative value is calculated upon the results of analysis of the sample deposited here. Whether the importer can be held responsible, without his explicit consent, for such valuation is an open question. It has been claimed that, while the importer guarantees a minimum percentage weight of phosphoric acid, he does not guarantee a minimum value for such ingredient.

In a few cases, there occur in the tables, samples which have been analyzed and registered although intended rather for *use* than for *sale* by the sender. This arises from indefiniteness on the part of the sender in stating just what was wanted.

It is probable that most of the brands registered as 'tankage' are not intended for sale as fertilizers, but rather, for sale as material for the manufacture of fertilizers. Strictly speaking it is no part of the duty of this department to do this class of work, which is entirely commercial in its character, and should be left to be dealt with by those financially interested in it.

The regulation under which a fertilizer analysis is made in this laboratory for the nominal charge of three dollars, is made primarily in the interest of users of fertilizers, or of dealers in the same who may desire to be in a position to give a personal guarantee as to the value of the goods they sell. The departmental laboratory does not desire to come into competition with commercial analysts, or to regulate the fees properly remunerative, for such work. It is only in such cases where we have found it impossible to make the above indicated distinctions, that work of the kind described has been accepted in this laboratory.

In our last bulletin (No. 134) on this subject, the late Chief Analyst remarks as follows: "The Fertilizers Act, 1890, requires that (Standard) samples shall be transmitted to the Minister of Inland Revenue, before the end of the month of January in each year, but, to suit the convenience of the manufacturers, this term has been gradually extended until samples are accepted which come as late as the end of April."

I have found it necessary, this year, to concede the same extension of time, and would respectfully draw your attention to the fact that the main object for which this publication exists, is really defeated by the delay referred to. This Bulletin is intended to furnish farmers and gardeners with information as to different brands of fertilizers to be offered for sale in Canada during the next following season. Unless the publication is in their hands, before they require to place their orders for fertilizers it is manifestly useless to them. As a matter of fact, this bulletin should be available to the public on the first of March.

Phosphate Slags.—Seven of the fertilizers herein registered are ground slags, containing from 16 to 20 per cent of phosphoric acid, to which they owe their fertilizing value. None of this phosphoric acid is in the free state; but the special combinations in which it exists are not fully known. By reference to Bulletin No. 70 (May, 1900) and No. 75 (May, 1901), it will be seen that the late Chief Analyst gave consideration to the question of expressing the "relative value" of phosphoric acid in these slags, as compared with the value of phosphoric acid in acidulated fertilizers. For various reasons, which are stated in Bulletin 70, he concluded "that it would be inconvenient and possibly unjust, to change a system which has been established for twelve years, and which is well understood by the fertilizer manufacturers and agriculturists of the Dominion, without at least substituting for it another which has the approval of a body of British Chemists having a reputation equally as high as that of the United States Association of Agricultural Chemists."

The matter was referred to the Society of Public Analysts, London (See Bulletin 75, p. 5), but, further than expressing themselves dissatisfied with the application of the Ammonium citrate process to basic slags, no conclusions were reached.

Here the matter has rested; and a 1 per cent citric acid solution has been applied to the determination of so called "available" phosphoric in slags, as in other fertilizers, since 1901.

The same process has been used in the samples now reported, because I am not prepared to recommend another process, as yet. But I am not persuaded that the process now employed, is all that could be wished, or that its indications do justice to the particular class of fertilizers known as phosphatic slags. It is certain that it would be unfair to apply the "relative numbers" based upon present methods of analysis, in comparing the fertilising value of a slag with that of a superphosphate fertilizer. The "relative values" herein given for slags, must be interpreted as only applicable to slag fertilizers, when compared with each other. And it is not certain that even then the conclusions drawn will be true to the facts, as indicated by field experiments.

It is not impossible that the phosphoric acid in slags is practically all of one kind, its availability depending rather upon the fineness with which the slag is ground, than upon any actual state of combination. The whole question of valuation of slags is yet undergoing study; and I hope that before another Bulletin dealing with fertilizers is issued, I shall be able to describe a method of analysis more fully meeting the exigencies of the case.

Reverted Phosphoric Acid.—The substitution of a 1 per cent solution of citric acid, for the usual solution of ammonium citrate, in determining reverted phosphoric acid, was made by the late Chief Analyst for reasons given in Bulletin 75 (page 6). These may be quoted here.

'Besides defending the position taken by this Branch, and also by the Agricultural Committee of the House of Commons.' I also suggested a plan by which *all* fertilizers could be tested by exactly the same method without doing any injustice to the Thomas Phosphate Powder or basic slag. This consisted (after the removal of the soluble phosphoric acid, when present, by water) in boiling the water-insoluble residue, or, in the case of basic slag, the powdered sample direct with a strong solution of ammonium chloride, so as to remove any free lime which the sample might contain, and after this to determine the available phosphoric acid by a 1 per cent solution of citric acid as recommended by Dr. Bernard Dyer. The latter part of the plan is justified in an elaborate paper by that gentleman entitled "On the analytical determination of probably available mineral plant food in soils", and published in the Journal of the Chemical Society, Vol. LXV; from which the following important conclusion may be quoted:—"A one per cent citric acid solution appears, then, to give indications fairly bearing out the manurial properties of phosphatic materials as recognized by experience in the field; it approximates fairly well to the average strength of the natural solvent (root-sap) used by the plant itself; and tested by the result it gives on soils of known history and condition, it appears likely to afford a not unreliable means of gauging, as regards the available mineral constituents the probable fertility of the soil itself"'.

This substitution of citric acid for citrate of ammonium has the disadvantage of making a comparison between the same brands of fertilizer analysed in this laboratory, and the laboratories of the United States, impossible or at best, unsatisfactory. The differences are certainly not great, but they are variable, since the complex nature of mixed fertilizers causes a variable effect, for the two solutions in question. It is, on this account, to be desired that an international method of operating should be determined upon.

I have already drawn your attention to several points in which our present Fertilizer Act is in need of amendment or revision, and I am pleased to know that such revision is contemplated in the immediate future. I beg to recommend the publication of this report as Bulletin No. 151.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

9-10 EDWARD VII., A. 1910

DESCRIPTION OF STANDARD SAMPLES OF

Date when Advised.	Designation.	Number of Sample.	Manufacturer.	By whom Sent.	From what Materials Produced.
1907.					
Aug. 7	Bone Meal, B.M.P.	2052	Portland Seed Co., Portland, Oregon.	M. J. Henry, Vancouver, B.C.	....
Sept. 19	Fertilizer.....	2053	Fowlers Canadian Co., Hamilton, Ont.	Manufacturers.....	Residue of lard tanks and beef and hog offal.
Aug. 20	Salmon Guano.....	2054	Fraser River Oilery, Vancouver, B.C.	Fraser River Oil and Guano Co.	Fish offal.....
Nov. 21	"Scotia" Basic Slag.	2055	Alex. Cross & Sons, Ltd., Glasgow, Scotland.	R. A. Beckwith, Amherst, N. S.	By-product in the manufacture of steel.
" 21	Nitrate of Soda.....	2056	" " ..	" " ..	.....
" 21	Muriate of Potash...	2057	" " ..	" " ..	.....
1908.					
Jan. 3	Bone Dust.....	2058	.....	Rufus R. Gage, importer Hamilton, Ont.	Bone .....
" 7	Sample E.....	2059	Harris Abattoir Co., Ltd., Toronto.	Manufacturers.....	Dried blood, bones and tankage.
" 10	Compound Fertilizer A.	2060	William Davies Co., Ltd. Toronto.	"	Blood, bone and dried albuminous matter,
" 10	Concentrated Fertilizer B.	2061	" " ..	"	Evaporated Tank water refuse.
" 21	Special Potato Manure.	2062	....	R. A. Beckwith, Amherst, N. S.	Sulphate of Ammonia, high grade German potash, animal matter and superphosphate.
" 21	Dissolved Bone.....	2063	R. A. Beckwith.....	" " ..	.....
" 21	Tankage D	2064	Davies Packing Co., Harriston, Ont.	Davies Packing Co., Harriston, Ont.	.....
" 24	Fertilizer (Tankage).	2065	D. B. Martin Co., Ltd., Toronto Junction.	Manufacturers.....	.....
" 24	Tankage.....	2066	Collingwood Packing Co., Ltd.	"	Tankage .....
" 25	Potato and Truck Manure.	2067	International Seed Co., Rochester, N.Y.	"	.....
" 25	Grain and Grass Fertilizer.	2068	International Seed Co., Rochester, N.Y.	"	.....
" 25	Crushed Bone.....	2069	Wm. Davies Co., Ltd., Toronto.	"	.....
" 25	Bone Meal.....	2070	"	"	.....
" 28	Tankage.....	2071	Davies Ltd., Montréal..	"	.....
" 28	Standard Bone and Potato Fertilizer.	2072	Michigan Carbon Works, Detroit, Mich.	Am. Agr. Chemical Co., Buffalo Sales Dept.	Blood, bone and tankage, mineral phosphates and potash.

SESSIONAL PAPER No. 14

FERTILIZERS REGISTERED FOR THE YEAR 1908.

	Results of Analysis.										
	Nitrogen.		Phosphoric Acid.							Relative value per ton of 2,000 lbs.	
	Total including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in water.	Citric soluble.	Insoluble.	Total.	Total available	Potash.	Moisture.		No. of Sample.
	p. c.	p. c	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	$ cts.	
Guaranteed contents	3 33	4·04	....	....	....	21 12	15·95	....	....	29 75	2052
Contents as found...	3·50	4 25	....	....	5 87	21 00	15 13	....	6 65	29 60	
Guaranteed contents	....	....	....	....	....	....	....	....	....	....	2053
Contents as found...	7 00	8 50	0·12	7 30	2 88	10 30	7 42	....	5 20	31 44	
Guaranteed contents	8 31	10·09	....	....	....	6·32	....	....	6 55	....	2054
Contents as found.	8 96	10·71	1·00	5 25	1 32	7 57	6 25	....	5 95	36 04	
Guaranteed contents	....	....	....	....	....	16to20	16·13	....	....	....	2055
Contents as found..	None	None	....	10·10	6 10	16 20	10 10	....	0 25	12 94	
Guaranteed contents	14 82	18·00	....	....	....	....	....	....	....	50 39	2056
Contents as found ..	14 42	17 60	....	....	....	....	....	....	1 00	49 03	
Guaranteed contents	....	....	....	....	....	....	....	50 00	....	50 00	2057
Contents as found...	....	....	....	....	....	....	....	55 76	....	55 76	
Guaranteed contents	2 47	3·00	....	....	....	23 00	....	....	....	....	2058
Contents as found...	2 34	2 84	....	11 60	11 50	23 10	11 60	....	2 70	23 70	
Guaranteed contents	9 32?	11·32	....	....	....	7·135	....	....	6 65	....	2059
Contents as found.	9 70	11·78	0·10	5 75	1 42	7·27	5 85	....	6 65	37 91	
Guaranteed contents	7·288	8 85	....	....	....	13 877	....	....	11 00	....	2060
Contents as found...	7 78	9 69	4 25	6 22	2·85	13 32	10 47	....	10 30	37 69	
Guaranteed contents	13 670	16 60	....	....	....	....	....	....	7·05	....	2061
Contents as found ..	12 88	15·64	0·25	0·83	0·27	1·37	1 08	....	6 60	42 51	
Guarantee d contents	1·65—3 29	2—4	....	....	....	8	....	7 to 9	....	....	2062
Contents as found ..	3·78	1 59	0·37	6 31	0 82	7·50	6·68	7 92	7 20	28 40	
Guaranteed contents	2·47	3·00	....	....	....	20to23	....	....	....	....	2063
Contents as found ..	4 20	5 10	....	9 85	11 65	21 50	9·85	....	5·00	28 61	
Guaranteed contents	8·32	10·1	....	....	....	12·46	....	....	7. 7	....	2064
Contents as found ..	8·54	10·37	None	8·25	3 25	11·50	8 25	....	9 65	37 38	
Guaranteed contents	....	....	....	....	....	....	....	....	....	....	2065
Contents as found ..	7 70	9 35	0·25	6·98	2 62	9·88	7·23	....	10·50	33 40	
Guaranteed contents	7 94	9·65	....	....	....	10·58	....	....	7·16	....	2066
Contents as found ..	8 54	10 37	0 25	10 40	0·83	11 48	10·65	....	4·77	39 32	
Guaranteed contents	1·25 to 2·05	1·50 à 2·50	6 to 8	2 to 3	1 to 2	9 to 13	8 to 11	7 to 10	....	20 95	2067
Contents as found ..	2·10	2 55	5·00	2 88	2·37	10·25	7·88	7 26	11 40	24 28	
Guaranteed contents	1·25 to 2·00	1·50 à 2·50	8 to 10	2 to 3	1 to 2	11to15	10to13	2 50to3 50	....	18 85	2068
Contents as found ..	1·32	1 60	5 62	3·98	3 12	12·72	9·60	2 87	12 20	19 42	
Guaranteed contents	1 08	1 96	....	....	....	24 21	....	....	7·45	....	2069
Contents as found ..	4 10	4·98	....	16 63	7·82	24·25	16 63	....	5·90	33 66	
Guaranteed contents	3·90	4 74	....	....	....	22·35	....	....	7·40	....	2070
Contents as found...	4 03	1 90	....	14 63	7 37	22 00	14 63	....	6·15	31 20	
Guaranteed contents	6·24	7·57	....	....	....	10·72	....	....	6·80	....	2071
Contents as found...	6·96	8 45	0·25	6 98	1·52	9·75	8·23	....	5.70	30 71	
Guaranteed contents	1·65—2 47	2—3	6—7	2—3	1—2	9—11	8—10	4—5	....	19 31	2072
Contents as found..	1·79	2·18	5 37	3·85	1·80	11·02	9·22	4 82	11·20	22 13	

DESCRIPTION OF STANDARD SAMPLES OF

Date when advised.	Designation.	No. of Sample.	Manufacturers.	By whom sent.	From what Materials Produced.
1908.					
Jan. 28	Great Eastern North-ern Corn Special.	2073	Am. Agr. Chemical Co., Great Eastern Fertilizer Branch, Rutland, Vt.	Manufacturer	
" 28	Great Eastern High Grade Potato Manure.	2074	"	"	
" 28	Great Eastern Potato Manure.	2075	"	"	
" 28	G. E. Potato Special.	2076	"	"	
" 28	G. E. General	2077	"	"	
" 28	G. E. Grass and Oats Fertilizer.	2078	"	"	
" 28	Aroostook Complete Manure.	2079	"	"	
" 29	Aroostook High Grade.	2080	A. A. C. Co	G. E. Fertilizer Branch, Rutland, Vt.	
" 29	Special Potato Mixture.	2081	Am. Agr. Co., Buffalo Sales Dept.	Manufacturers, Buffalo	Animal matter, blood, bone and tankage, mineral phosphates, potash and all treated with sulphuric acid.
" 29	High Grade Potash Compound.	2082	"		"
" 29	Bradley's New Method Fertilizer.	2083	"	"	"
" 29	Bradley's B.D. Sea-Fowl Guano.	2084	Am. Agr. Co., Buffalo Sales Department.	Manufacturers, Buffalo	Animal matter, blood, bone and tankage mineral phosphates potash, and all treated with sulphuric acid.
" 29	Bradley's Complete Manure for Potatoes and Vegetables.	2085	" "	"	" "
" 29	Crocker's New York Special Phosphate.	2086	" "	"	" "
" 29	Crocker's Wheat and Corn Fertilizer.	2087	" "	"	" "
" 29	Crocker's Cabbage and Potato Manure.	2088	" "	"	"
" 29	Crocker's Best Potash Fertilizer.	2089	" "	"	" "
" 29	Crocker's Complete Manure.	2090	" "	"	" "
" 29	Crocker's Special Potato Manure.	2091	" "	"	" "
" 29	North-Western Complete Manure.	2092	N. W. Fertilizing Co., Chicago, Ill.	Geo. C. Bingham, Buffalo.	
" 29	Michigan Carbon Fruit and Vine Fertilizer.	2093	Michigan Carbon Works, Detroit.	American Agr. Chemical Co., Buffalo.	

SESSIONAL PAPER No. 14

FERTILIZERS REGISTERED FOR THE YEAR 1908.

Results of Analysis.												
Nitrogen.			Phosphoric Acid.									
Total including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in water.	Citric soluble.	Insoluble.	Total.	Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	No. of Sample.
p. c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	$ cts.	
Guaranteed contents 2·06—2·88	2·50—3·50	5—6	3—4	2—3	10—13	8—10	1·50—2·50	.....	18 46	2073
Contents as found .. 2·21	2·69	6·85	2·53	1·57	10·95	9·38	2·10	10·75	21 09	
Guaranteed contents 3·30—4·13	4—5	4—6	2—4	1—2	7—10	6—8	10—12	.....	28 52	2074
Contents as found .. 3·36	4·08	5·70	1·92	1·25	8·87	7·62	9·38	10·05	30 13	
Guaranteed contents 2·06—2·86	2·5—3·5	5—6	3—4	2—3	10—13	8—10	3—4	.....	19 90	2075
Contents as found .. 2·09	2·53	7·25	2·92	1·75	11·92	10·17	3·88	4·85	23 42	
Guaranteed contents 3·30—4·12	4—5	6—8	2—3	1—2	9—13	8—11	7—8	.....	27 92	2076
Contents as found .. 3·51	4·27	6·00	3·83	1·17	11·00	9·83	7·20	6·25	30 90	
Guaranteed contents 0·82—1·65	1—2	5—7	3—4	2—3	10—14	8—11	4—5	.....	16 69	2077
Contents as found .. 1·14	1·39	5·00	4·00	1·70	10·70	9·00	5·63	8·75	23 42	
Guaranteed contents	.....	6—7	5—6	1—2	12—15	11—13	2—3	.....	15 00	2078
Contents as found	.....	6·05	4·62	2·15	12·82	10·67	3·07	11·00	16 06	
Guaranteed contents 2·10—3·00	3—4	5—6	1—2	1—2	7—10	6—8	10—12	.....	25 56	2079
Contents as found .. 2·21	2·72	5·15	3·15	1·25	9·55	8·30	10·08	6·55	27 72	
Guaranteed contents 1·00—5·00	5—6	5—7	2—3	1—2	8—12	7—10	7—8	.....	29 10	2080
Contents as found .. 1·48	5·44	5·00	3·65	1·00	9·65	8·65	6·87	10·25	32 42	
Guaranteed contents 0·82—1·65	1—2	7—8	2—3	1—2	10—12	9—11	7—8	.....	20 69	2081
Contents as found .. 1·51	1·87	6·50	2·25	1·72	10·47	8·75	8·05	10·25	24 08	
Guaranteed contents 1·65—2·47	2—3	6—7	2—3	1—2	9—11	8—10	10—11	.....	25 31	2082
Contents as found .. 2·10	2·55	5·25	1·75	2·50	9·50	7·00	9·96	12·05	26 08	
Guaranteed contents 0·82—1·65	1—2	6—7	2—3	1—2	9—11	8—10	2—3	.....	14 49	2083
Contents as found .. 2·10	2·55	5·00	1·97	3·00	9·97	6·97	2·10	9·95	18 31	
Guaranteed contents 2·06—2·88	2·5—3·5	6—7	2—3	1—2	9—11	8—10	1·50—2·50	.....	18 20	2084
Contents as found .. 2·25	2·74	5·25	2·40	2·75	10·40	7·65	2·29	10·35	19 71	
Guaranteed contents 3·29—4·12	4—5	6—7	2—3	1—2	9—11	8—10	7—8	.....	27 89	2085
Contents as found .. 3·36	4·08	5·50	2·82	1·75	10·07	8·32	6·89	10·25	28 54	
Guaranteed contents	.....	8—10	2—3	1—2	11—14	10—12	8—9	.....	20 10	2086
Contents as found .. 0·31	0·37	9·50	0·25	1·25	11·00	9·75	7·74	10·05	20 84	
Guaranteed contents 2·06—2·88	2·5—3·5	6—7	2—3	1—2	9—11	8—10	1·5·2·5	.....	18 20	2087
Contents as found .. 2·41	2·92	5·00	3·38	3·12	11·50	8·38	2·02	10·15	20 87	
Guaranteed contents 2·47—3·30	3—4	6—7	2—3	1—2	9—11	8—10	6—7	.....	24 10	2088
Contents as found .. 3·18	3·91	6·75	2·42	1·25	10·42	9·17	5·89	8·75	27 84	
Guaranteed contents 1·65—2·47	2—3	6—7	2—3	1—2	9—11	8—10	10—11	.....	25 31	2089
Contents as found .. 1·75	2·13	5·25	2·92	2·20	10·37	8·17	10·00	12·25	26 12	
Guaranteed contents 1·82—1·65	1—2	6—7	2—3	1—2	9—11	8—10	4—5	.....	16 49	2090
Contents as found .. 0·95	1·16	5·50	1·42	2·80	9·72	6·92	4·40	12·15	16 63	
Guaranteed contents 3·29—4·12	4—5	6—7	2—3	1—2	9—11	8—10	7—8	.....	27 89	2091
Contents as found .. 3·68	4·47	4·00	3·87	2·50	10·37	7·87	6·91	11·10	29 23	
Guaranteed contents 2·06—2·88	2·5—3·5	6—7	2—3	1—2	9—11	8—10	3—4	.....	19 70	2092
Contents as found .. 2·31	2·91	4·25	3·00	2·75	10·00	7·25	3·49	14 10	20 57	
Guaranteed contents 1·65—2·47	2—3	6—7	2—3	1—2	9—11	8—10	10—11	.....	25 31	2093
Contents as found .. 1·79	2·13	4·65	3·03	2·07	9·75	7·68	10·33	12·35	25 95	

DESCRIPTION OF STANDARD SAMPLES OF

Date when Advised.	Designation.	No. of Sample.	Manufacturer.	By whom Sent.	From what Materials Produced.
1908.					
Jan. 29	M. C. Complete Fertilizer.	2094	Michigan Carbon Co., Detroit.	American Agr. Chemical Co., Buffalo.	
" 29	M. C. Defiance Fertilizer.	2095	" "	" "	
" 29	M. C. General Crop Fertilizer.	2096	" "	" "	
" 29	M. C. Potato and Tobacco Fertilizer.	2097	" "	" "	
" 29	Homestead High Grade Garden Vegetable Fertilizer.	2098	" "	" "	
" 29	High Grade Fruit and Vegetable Fertilizer.	2099	" "	" "	
" 29	Pure Bone Meal	2100	W. A. Freeman Co., Ltd., Hamilton, Ont.	Manufacturer	Phosphate,, blood, bone, tankage, sulphuric acid, muriate of potash, sulphate of potash, sulphate of ammonia, nitrate of soda.
" 29	Bone and Potash	2101	" "	"	"
" 29	Tobacco Manure	2102	" "	"	"
" 29	Celery and Early Vegetable Manure	2103	" "	"	"
" 29	Potato Manure	2104	" "	"	"
" 29	Sure Growth Manure	2105	" "	"	"
" 29	Phosphate Powder	2106	" "	"	"
" 29	Tankage Manure	2107	" "	" "	"
" 29	Fertilizer	2108	Fowlers Can. Co., Ltd., Hamilton, Ont.	"	Blood, bone and tank residue of hogs and cattle.
" 29	Thomas Phosphate Powder, 17/20.	2109	Works H. & E. Albert, London.	Anglo-Can. Chem. Co., St. John, N.B.	
" 30	Thomas Phosphate Powder, 14/16 (ground basic slag).	2110	" "	" "	
" 30	Alberti Horticultural Manure Brand, A. G.	2111	Chem. Works late H. & E. Albert, Biebrich on Rhine, Germany.	" "	
Feb. 5	Homestead Corn and Grain Producer.	2112	Michigan Carbon Works, Detroit.	Am. Agr. Chem. Co., Buffalo Sales Dept.	
" 5	Homestead Dissolved Bone Phosphate.	2113	" "	" "	
" 5	Fertilizer	2114	London Fertilizer Works, London, Ont.	Manufacturers	Bones and meat of animals.

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FERTILIZERS REGISTERED FOR THE YEAR 1908.

	Results of Analysis.										
	Nitrogen.		Phosphoric Acid.								
	Total including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in water.	Citric soluble.	Insoluble.	Total.	Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	No. of Sample.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	$ cts.	
Guaranteed contents	1·65—2·47	2—3	6—7	2—3	1—2	9—11	8—10	4—5	.....	19 31	2094
Contents as found...	1·88	2·28	5·17	3·56	2·37	11·10	8·73	4·32	12·15	21 54	
Guaranteed contents	1·65—2·47	2—3	6—7	2—3	1—2	9—11	8—10	2—3	.....	17 31	2095
Contents as found...	1·96	2·38	5·37	3·71	1·67	9·75	8·08	2·31	13·35	20 00	
Guaranteed contents	0·82—1·65	1—2	6—7	2—3	1—2	9—11	8—10	4—5	.....	16 49	2096
Contents as found...	0·91	1·11	4·50	3·80	1·95	10·25	8·30	4·15	13·65	17 41	
Guaranteed contents	2·06—2·88	2·5—3·5	6—7	2—3	1—2	9—11	8—10	3—4	.....	19 70	2097
Contents as found...	2·31	2·81	4·25	3·28	2·22	9·75	7·53	4·05	11·45	21 28	
Guaranteed contents	2·06—2·88	2·5—3·5	6—7	2—3	1—2	9—11	8—10	6—7	.....	22 70	2098
Contents as found...	2·16	2·62	5·52	4·23	1·25	11·00	9·75	6·31	12·10	25 31	
Guaranteed contents	3·29—4·12	4—5	6—7	2—3	1—2	9—11	8—10	7—8	.....	27 89	2099
Contents as found...	4·40	5·34	5·50	3·05	1·50	10·05	8·55	6·97	11·10	32 34	
Guaranteed contents	2·47—4·12	3—5	.....	.....	.....	20·25	.....	.....	.....	.....	2100
Contents as found...	3·29	4·00	.....	13·75	7·75	21·50	13·75	.....	8·60	28 64	
Guaranteed contents	1·65—2·47	2—3	.....	.....	.....	9—10	.....	6—8	.....	.....	2101
Contents as found...	3·02	3·67	1·22	4·95	2·95	9·12	6·17	6·29	10·10	24 35	
Guaranteed contents	2·47—3·29	3—4	.....	.....	.....	7—9	.....	4—5	.....	.....	2102
Contents as found...	3·15	3·82	1·12	4·76	3·62	9·50	5·88	5·23	9·80	23 61	
Guaranteed contents	4·12—5·77	5—7	.....	.....	.....	9—10	.....	5—7	.....	.....	2103
Contents as found...	5·50	6·68	0·85	6·03	2·37	9·25	6·88	4·96	9·15	32 02	
Guaranteed contents	2·47—3·29	3—4	.....	.....	.....	8—10	.....	5—7	.....	.....	2104
Contents as found...	3·05	3·71	0·87	5·33	3·35	9·55	6·20	5·96	7·45	24 24	
Guaranteed contents	2·88—4·12	3·5—5	.....	.....	.....	8—10	.....	3—4	.....	.....	2105
Contents as found...	3·43	4·16	0·47	5·93	2·90	9·30	6·40	4·61	6·95	24 23	
Guaranteed contents	.....	.....	.....	.....	.....	13—18	.....	.....	.....	.....	2106
Contents as found...	.....	.....	.....	11·37	7·37	18·74	11·37	..	10·30	14 72	
Guaranteed contents	1·65—5·77	2—7	.....	.....	.....	12—15	.....	.....	.....	.....	2107
Contents as found...	7·08	8·60	0·25	9·50	2·25	12·00	9·75	....	10.15	35 50	
Guaranteed contents	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2108
Contents as found...	7·06	8·57	0·12	5·33	1·30	6·75	5·45	.....	6·85	28 99	
Guaranteed contents	.....	.....	.....	.....	.....	17·20	.....	.....	.....	.....	2109
Contents as found...	.....	.....	...	13·00	5·25	18·25	13·00	.....	Trace	15 88	
Guaranteed contents	.....	.....	.....	.....	.....	14·16	.....	.....	.....	.....	2110
Contents as found...	.....	.....	.....	12·45	4·30	16·75	12·45	.....	Trace	14 99	
Guaranteed contents	11·90	14·45	11·10	.....	.....	.....	.....	15·16	.....	68 94	2111
Contents as found...	12·07	14·65	11·10	None	Trace	11·10	11·10	15·25	13·95	69 61	
Guaranteed contents	1·65—2·47	2—3	6—7	2—3	1—2	9—11	8—10	2—3	...	17 31	2112
Contents as found...	2·66	2·87	6·17	3·53	2·30	12·00	9·70	2·24	9·45	23 26	
Guaranteed contents	.....	.....	10—12	2—3	1—2	13—15	12—14	.....	.....	14 50	2113
Contents as found...	.....	.....	10·40	2·65	1·92	14·37	12·45	....	10·90	15 31	
Guaranteed contents	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2114
Contents as found...	4·24	6·36	Trace	8·32	2·00	10·32	8·32	.....	10·50	23 32	

DESCRIPTION OF STANDARD SAMPLES OF

Date when Advised.	Designation.	No. of Sample.	Manufacturer.	By whom Sent.	From what Materials Produced.
1907.					
Feb. 5	Watch 'Em Grow...	2115	Standard Fert. & Chem. Co., Ltd., Smith's Falls	Manufacturers.....	Nitrate of soda, ammonia, potash and Magnesia salts. Bone, superphosphate of lime and bone meal.
" 7	Fertilizer Tankage..	2116	Laing Packing and Provision Co., Montreal.	"	Bones and offal of hogs, cattle and sheep.
" 7	Dried Blood.....	2117	" " ..	"	Blood of hogs, cattle and sheep.
" 13	Ground Bone.....	2118	The Pidgeon Fertilizer Co., Ltd., Windsor, N.S.	"	Nitrate of soda, dried blood and tankage, ground bone, muriate of potash, potash salts, rock phosphate, sulphuric acid and sulphate of ammonia.
" 13	Intense Brand.....	2119	" " ..	"	" ..
" 13	Potato Manure	2120	" " ..	"	" ..
" 13	Potato Guano	2121	" " ..	"	" ..
" 13	Brunswick Brand...	2122	" "	"	" ..
" 13	Eureka Phosphate..	2123	" " ..	"	" ..
" 14	Swifts Lowell Cereal Fertilizer.	2124	Swift's Lowell Fertilizer Co., Boston, Mass.	"	Blood meat, bone, bone black, bone phosphates, nitrate of soda or sulphate of ammonia and sulphate or muriate of potash.
" 14	Empress Brand.	2125	" " ..	"	" ..
" 14	Bone Fertilizer.....	2126	" " ..	"	" ..
" 14	Animal Brand.....	2127	" " ..	"	" ..
" 14	Potato Manure.....	2128	" " ..	"	" ..
" 14	Potato Phosphate...	2129	" " ..	"	" ..
" 14	Potato Grower.....	2130	" " ..	"	" ..
" 14	Swifts Superior Fertilizer.	2131	" " ..	"	" ..
" 14	Lowell Ground Bone.	2132	Swift's Lowell Fertilizer Co., Mass.	"	

FERTILIZERS REGISTERED FOR THE YEAR 1908.

	Results of Analysis.										
	Nitrogen.		Phosphoric Acid.								
	Total including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in water.	Citric soluble.	Insoluble.	Total.	Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	Number of Sample.
	p. c.	p.c	p. c.	p. c.	p. c.	p. c.	p. c	p. c.	p. c.	$ cts.	
Guaranteed contents	3·29	4	....	....	....	....	9	8	....	29 08	2115
Contents as found	4·02	4·88	11·60	0·85	1·55	13·40	11·85	7·43	6·70	35 70	
Guaranteed contents	7·66	9·31	....	....	....	10·46	....	....	10·60	....	2116
Contents as found	7·56	9·18	5·00	2·50	2·95	10·45	7·50	....	10·00	33 83	
Guaranteed contents	12·84	15·60	....	....	....	....	....	....	17·14	....	2117
Contents as found	13·22	15·95	0·50	0·25	None	0·75	0·75	....	15·95	43 18	
Guaranteed contents	2·47	3·00	....	....	....	20·00	....	....	....	....	2118
Contents as found	2·76	3·37	....	13·00	11·00	24·00	13·00	....	4·65	26 98	
Guaranteed contents	2·06	2·50	....	....	....	7·00	....	4·60	....	....	2119
Contents as found	2·10	2·55	6·05	1·50	0·25	7·80	7·55	3·86	12·40	19 99	
Guaranteed contents	1·65—2·47	2—3	....	....	....	9—10	7—8	5—6	....	18 91	2120
Contents as found	2·03	2·45	5·80	0·35	1·55	7·70	6·15	5·31	9·10	20 02	
Guaranteed contents	1·65—2·47	2—3	....	....	....	....	7—8	2·50	....	15 81	2121
Contents as found	1·74	2·11	4·15	2·55	0·37	7·07	6·70	5·57	11·80	19 38	
Guaranteed contents	3·29	4·00	....	....	....	6·00	....	8·00	....	....	2122
Contents as found	3·12	3·79	5·42	1·00	0·50	6·92	6·42	8·53	12·30	26 89	
Guaranteed contents	2·06	2·50	....	....	....	....	8·00	1·50	....	17 30	2123
Contents as found	2·11	2·57	7·50	1·63	0·62	9·75	9·13	3·84	10·70	21 99	
Guaranteed contents	0·82	1·00	....	....	1·00	8	7	1	....	11 79	2124
Contents as found	0·98	1·19	5·30	1·88	0·82	8·00	7·18	1·23	12·50	13 24	
Guaranteed contents	1·24	1·50	....	....	1·00	8	7	2	....	14 22	2125
Contents as found	1·29	1·56	5·37	3·88	0·62	9·87	9·25	2·16	6·70	17 44	
Guaranteed contents	1·65	2·00	....	....	....	9	8	3	....	17 38	2126
Contents as found	2·07	2·52	5·00	3·67	0·87	9·50	8·63	3·66	4·75	20 54	
Guaranteed contents	2·47	3·00	....	....	....	10	8	4	....	21 80	2127
Contents as found	2·55	3·09	5·32	4·48	0·95	10·75	9·80	4·19	9·30	24 46	
Guaranteed contents	1·65	2·00	....	....	....	8	7	4	....	17 61	2128
Contents as found	1·54	1·87	5·10	3·75	0·62	9·47	8·85	4·44	6·35	20 11	
Guaranteed contents	2·47	3·00	....	....	....	9	8	6	....	23 50	2129
Contents as found	2·60	2·96	4·80	5·32	0·95	11·07	10·12	6·56	6·40	27 30	
Guaranteed contents	3·29	4·00	....	....	....	7	6	10	....	28 09	2130
Contents as found	3·96	4·78	4·17	4·29	0·75	9·12	8·37	10·50	4·50	33 81	
Guaranteed contents	3·70	4·50	....	....	1	8	7	10	....	30 58	2131
Contents as found	4·09	4·96	4·45	4·22	0·70	9·37	8·67	10·00	7·60	34 10	
Guaranteed contents	2·47	3	....	....	....	25	....	....	....	....	2132
Contents as found	2·63	3·19	....	17·50	7·25	24·75	17·50	....	4·50	29 84	

DESCRIPTION OF STANDARD SAMPLES OF

Date when Advised.	Designation.	No. of Sample.	Manufacturer.	By whom Sent,	From what Materials Produced.
1908.					
Feb. 14	Peerless Fertilizer..	2133	New England Fertilizer Co., Boston.	Manufacturers	Blood, meat, bone, bone black, bone phosphate, nitrate soda or sulphate ammonia and sulphate of potash or muriate of potash.
" 14	Potato Fertilizer....	2134	"	"	" ..
" 14	New England Corn and Grain.	2135	"	"	" ..
" 14	N.E. Potato Grower	2136	...	"	" ..
" 14	N.E. Ground Bone..	2137	" ...	"	" ..
" 14	Essex XXX Fish and Potash.	2138	Essex Fertilizer Co., Boston.	"	Fish meat, bone, bone black, bone phosphate, nitrate of soda or sulphate of ammonia and sulphate or muriate of potash.
" 14	Essex MarketGarden and Potato Manure	2139	" ...	"	" .
" 14	Essex Complete Manure for Potatoes, Roots and Vegetables.	2140	"	"	" ..
" 14	Essex Ground Bone	2141	" ...	"	" ..
" 14	Bradley's Superphosphates forOrchards	2142	Am. Agr. Chemical Co., Boston Sales Dept.	"	Bone black, phosphateguano muriate or sulphate of potash.
" 14	Bradley's Potato Fertilizer.	2143	"	"	Bone black, animal bone, phosphate guano, dried fish, meat or blood, nitrate of soda or sulphate of ammonia, sulphate or muriate of potash sulphuric acid.
" 14	Bradley's XL Superphosphate of Lime.	2144	" ...	"	" ..
" 14	Bradley's Farmers New Method Fertilizer.	2145	"	"	" ..
" 14	Bradley's Fine Ground Bone.	2146	"	"	" ..
" 14	Bradley's Eclipse Phosphate.	2147	"	"	..

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FERTILIZERS REGISTERED FOR THE YEAR 1908.

	Results of Analysis.										
	Nitrogen.		Phosphoric Acid.								
	Total including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in water.	Citric soluble.	Insoluble.	Total.	Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	No. of Sample.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	$ cts.	
Guaranteed contents	0·82	1	.. .	.....	1	8	7	1	.....	11 79	2133
Contents as found..	1·04	1·26	5·75	3·30	0·70	9 75	9·05	1 41	4 95	15 69	
Guaranteed contents	1 65	2	....	.....	.....	8	7	4		17 61	2134
Contents as found .	1·74	2·11	5·57	3·06	0·62	9·25	8 63	4 57	9 10	20 72	
Guaranteed contents	1·24	1 50	.....	.....	.....	8	7	2	.....	14 22	2135
Contents as found..	1·41	1 75	5·55	1 40	1 50	8 45	6·95	2 56	7·70	16 11	
Guaranteed contents	2·47	3	.....	.....	.....	7	6	10	.....	25 30	2136
Contents as found..	2 52	3 06	4·95	0·60	2·45	8·00	5·55	10·94	6·70	26 84	
Guaranteed contents	2 47	3	.....	.....	.....	25	.....	.....	.....	.....	2137
Contents as found..	2·51	3·03	...	14 23	10 87	25·10	14·23	.....	10 35	26 95	
Guaranteed contents	2 06	2 05	.....	.....	1	9	8	3	.....	19 10	2138
Contents as found .	2·14	2 60	7·52	1 36	2·12	11 00	5 88	3·41	7·80	21 84	
Guaranteed contents	2·06	2·5	.....	.....	1	9	8	5	...	21 10	2139
Contents as found..	2·17	2·63	4·85	3 15	2 75	10·75	8 00	5·54	7·15	23 03	
Guaranteed contents	3·29	4	.....	.....	1	7	6	10	..	28 09	2140
Contends as found.	3 61	4·39	4 42	2·75	2·25	9 42	7·17	10 35	6·30	31 63	
Guaranteed contents	2·47	3	.	.....	... .	23	10	....	. .	22 80	2141
Contents as found..	2·63	3 20	....	14 65	9 10	23·75	14 65	.	5·35	27 26	
Guaranteed contents	....	....	11—13	3—4	1—2	15—19	14—17	.....		16 80	2142
Contents as found..	trace.	trace.	12·00	1·60	3·25	16 85	13 60	. ..	10·70	17 14	
Guaranteed contents	2·06—2·88	2 5—3·5	5—6	3—4	2—3	10—13	8—10	3—4	....	19 90	2143
Contents as found..	2·24	2·72	6·00	1·75	3·00	10·75	7·75	3·59	11·40	21 23	
Guaranteed contents	2·06—2·88	2 5—3·5	5—6	3—4	2—3	10—13	8—10	1·5-2·5	....	18 40	2144
Contents as found..	2·27	2·75	6·62	0·55	3·00	10·17	7·17	1·73	12 15	18 90	
Guaranteed contents	1·03—2·50	1·25— 3	6– 8	2—4	2—3	10—15	8—12	2—3	....	15 50	2145
Contents as found..	1·48	1·80	6·90	1·95	2·15	11·00	8·85	2·10	13·35	18 20	
Guaranteed contents	2 50—3·25	3—4	.....	.....	.....	21·23	...	.....	.....	.....	2146
Contents as found..	2·91	3·54	.....	19·50	7·00	26·50	19 50	....	5 75	33 44	
Guaranteed contents	1 03—2·50	1·25—3·00	6—8	2—4	2—3	10—15	8—12	2—3	...	15 50	2147
Contents as fonnd..	1·31	1·60	6·12	2·73	2·25	11·10	8·85	2·20	6 15	17 68	

DESCRIPTION OF STANDARD SAMPLES OF

Date when Advised.	Designation.	No. of Sample.	Manufacturer.	By whom Sent.	From what Materials Produced.
1908.					
Feb. 14	Bradley's Eureka Fertilizer.	2148	Am. Agr. Chemical Co., Boston Sales Dept.	Manufacturers.....	Bone black, animal bone, phosphate guano, dried fish, meat or blood, nitrate of soda or sulphate of ammonia, sulphate or muriate potash, sulphuric acid.
" 14	Bradley's Alkaline Bone with Potash.	2149	" " ..	"	" ..
" 14	Bradley's Complete Manure with 10 per cent Potash.	2150	" " ..	"	" ..
" 14	Bradley's High Grade Fertilizer with 10 per cent Potash.	2151	" " .	"	" ..
" 14	Read's Standard Superphosphate.	2152	" " .	"	" ..
" 14	Read's Sure Catch Fertilizer.	2153	" " ..	"	Bone black and phosphateguano, muriate or sulphate potash.
" 14	Read's Fish Bone and Potash.	2154	" " .	"	Bone black, animal bone, phosphate guano, dried fish, meat or blood, nitrate of soda or sulphate of ammonia, sulphate or muriate of potash, sulphuric acid.
" 14	Read's Practical Potato Special.	2155	" ..	"	" ..
" 14	Read's Vegetable and Vine Fertilizer.	2156	" " .	"	" ..
" 14	Read's Potato Manure.	2157	" " ..	"	" ..
" 11	Read's High Grade Farmers Friend.	2158	" " .	"	" .
" 11	Tucker's Imperial Bone Superphosphate.	2159	" "	"	" .
" 14	Williams & Clark's Americus Potato Manure.	2160	" "	"	" ..
" 14	Pacific Potato Special.	2161	" "	"	" ..
" 14	Pacific Nobsque Guano.	2162	" "	"	" .
" 14	Pacific Fine Ground Bone.	2163	" " .	"	" .

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FERTILIZERS REGISTERED FOR THE YEAR 1908.

	Results of Analysis.											
	Nitrogen.		Phosphoric acid.					Potash.	Moisture.	Relative value per ton of 2,000 lbs.	No. of Sample.
	Total including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in water	Citric soluble.	Insoluble.	Total.	Total available				
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	$ cts.	
Guaranteed contents	1·03—2·50	1·25—3·00	6—8	2—4	2—3	10—15	8—12	2—3	.....	15 50	2148
Contents as found...	1 51	1 84	5 97	1 45	3·25	10 67	7 42	2 16	13·80	17 03	
Guaranteed contents	..	.....	5—7	5—6	1—2	12—15	11—13	2—3	.....	13 80	2149
Contents as found .	.....	.....	6·92	5 58	1 80	14 30	12·50	1·98	8·45	16 96	
Guaranteed contents	3·30—4 13	4—5	4—6	2—4	1—2	7—10	6—8	10—12	.....	28 52	2150
Contents as found .	3 39	4 11	5 85	1 60	1 80	9·25	7 45	9 57	10 15	30 12	
Guaranteed contents	2·40—3·00	3—4	5—6	1—2	1—2	7—10	6—8	10—12	.....	25 56	2151
Contents as found .	2 69	3·26	5 17	2 15	2 10	9·42	7 32	9 84	8·55	28 19	
Guaranteed contents	0·82—1·65	1—2	5—7	3—4	2—3	10—14	8—11	4—5	.....	16 69	2152
Contents as found .	1 16	1·41	5 42	2·71	2·37	10 50	8 13	5 44	6·55	19 58	
Guaranteed contents	.....	.....	6—7	4—5	1—2	11—14	10—12	2—3	.....	13 90	2153
Contents as found.	.....	.....	6 82	4 20	2·10	13·12	11 02	1·87	10·40	15 30	
Guaranteed contents	2—3	2·10—3·60	3—4	1—2	1—2	5—8	4—6	4—6	.....	15 80	2154
Contents as found..	2 30	2 81	5 90	2·35	2·12	10·37	8 25	4·34	14 60	22 46	
Guaranteed contents	0·82—1 55	1—2	2—3	2—3	1—2	5—8	4—6	8—10	.....	15 69	2155
Contents as found....	1 12	1·36	5·25	1 42	2·75	9 42	6·67	9 07	14 00	21 57	
Guaranteed contents	2·06—2·88	2·5—3·5	5—6	3—4	2—3	10—13	8—10	6—7	.....	22 90	2156
Contents as found...	2·58	3 13	6 05	2·13	1·92	10 10	8·18	6·50	13·90	25 45	
Guaranteed contents	2·4—3	3—4	5—6	1—2	1—2	7—10	6—8	10—12	.....	25 56	2157
Contents as found...	2·86	3·47	5·42	1·28	2·55	9 25	6·70	9·84	7·25	28 24	
Guaranteed contents	3·5—4·13	4—5	4—6	2—4	1—2	7—10	6—8	10—12	.....	29 20	2158
Contents as found...	3·85	4·67	6·00	1·55	1 80	9 35	7·55	9·82	10·40	32 36	
Guaranteed contents	1·03—2·50	1·25—3	6—8	2—4	2—3	10—15	8—12	2—3	.....	15 50	2159
Contents as found ..	1·18	1·43	6·50	2 25	2·50	11·25	8·75	2·81	12·40	17 85	
Guaranteed contents	2 06—2·88	2·5—3·5	5—6	3—4	2—3	10—13	8—10	3—4	.....	19 90	2160
Contents as found....	2 16	2 62	5.97	2·73	2·80	11 50	8 70	3·57	11·10	21 92	
Guaranteed contents	2 06—2 88	2 5—3·5	5—6	3—4	2—3	10—13	8—10	3—4	.....	19 90	2161
Contents as found...	2·27	2 75	5 62	3·21	2·82	11 65	8·83	3·47	11·10	22 34	
Guaranteed contents	1·03—2 5	1·25—3·0	6—8	2—4	2—3	10—15	8—12	2—3	.....	15 50	2162
Contents as found...	1·23	1·50	6·15	2·05	2 10	10 30	8·20	2·18	13·35	16 63	
Guaranteed contents	2·5—3·25	3—4	..	.....	.....	21—23	.....	.....	.....	.....	2163
Contents as found. .	2 23	2 70	..	17·20	8 30	25 50	17·20	.....	5·10	28 99	

DESCRIPTION OF STANDARD SAMPLES OF

Date when advised.	Designation.	No. of sample.	Manufacturer.	By whom sent.	From what Materials Produced.
1907.					
Feb. 14	Soluble Pacific Guano	2164	Am. Agr. Chem. Co., Boston Sales Dept.	Manufacturers	Bone black, animal bone, phosphate, guano, dried fish, meat or blood, nitrate of soda or sulphate of ammonia, sulphate or muriate potash, sulphuric acid.
" 14	Quinnipiac Climax Phosphate for all Crops.	2165	" " ..	"	" ..
" 14	Quinnipiac Potato Manure.	2166	" " ..	"	" ..
" 14	Quinnipiac Market Garden Manure.	2167	" " ..	"	" ..
" 14	Cumberland Superphosphate.	2168	" " ..	"	" ..
" 14	Cumberland Potato Fertilizer.	2169	" " ..	"	" ..
" 14	Cumberland Fine Ground Bone.	2170	" " .	"	" ..
" 14	Standard Fertilizer.	2171	" " ..	"	" ..
" 14	Standard Special for Potatoes.	2172	" " ..	"	" ..
" 14	Darling's Blood, Bone and Potash.	2173	" " ..	"	" ..
" 14	Clark's Cove, Great Plant Manure.	2174	" " ..	"	"
" 14	Highgrade Fertilizer, with 10% Potash.	2175	" " ..	"	" ..
" 21	Croker's General Crop Fertilizer.	2176	Am. Agr. Chem. Co., Buffalo Sales Dept.	"	" ..
" 21	Special Potato Phosphate.	2177	Nova Scotia Fertilizer Co., Halifax, N.S.	"	Bone, char-bone dried blood, tankage, meat, fish, bone phosphate, sulphate of ammonia, nitrate of soda, muriate or sulphate of potash, sulphuric acid.
" 21	Bone Meal.....	2178	" " ..	"	" ..
" 21	10% Potato Phosphate.	2179	" " ..	"	" ..
" 14	Ceres Superphosphate	2180	Nova Scotia Fertilizer Co., Halifax, N.S.	"	Bone char-bone, dried blood, tankage meat, fish, bone phosphate, sulphate of ammonia, nitrate soda, muriate or sulphate of potash, sulphuric acid

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FERTILIZERS REGISTERED FOR THE YEAR 1908.

Results of Analysis.											
Nitrogen.		Phosphoric Acid.									
Total including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in water.	Citric soluble.	Insoluble.	Total.	Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	No. of Sample.
p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	$ cts.	
Guaranteed contents 2·06—2·88	2·5—3·5	5—6	3—4	2—3	10—13	8—10	1·5-2·5	.....	18 40	2164
Contents as found .. 2·09	2·53	6·72	1·21	3·37	11·30	7·93	1·68	10·20	19 19	
Guaranteed contents 1·03—1·65	1·25—3·00	6—8	2—4	2—3	10—15	8—12	2—3	.....	15 50	2165
Contents as found .. 1·12	1·36	5·80	1·88	2·82	10·50	7·68	3·51	14·05	17 19	
Guaranteed contents 2·5—3·25	3—4	5—6	1—2	2—3	8—11	6—8	5—6	..	21 20	2166
Contents as found .. 2·13	2·58	4·00	2·65	3·35	10·00	6·65	5·56	13·00	21 52	
Guaranteed contents 3·30—4·12	4—5	6—8	2—3	1—2	9—13	8—11	7—8	.....	27 92	2167
Contents as found .. 2·16	2·62	6·15	2·52	2·25	10·92	8·67	7·70	8·50	25 87	
Guaranteed contents 2·06—2·88	2·5—3·5	5—6	3—4	2—3	10—13	8—10	1·5-2·5	..	18 40	2168
Contents as found .. 1·53	1·85	6·92	3·51	2·32	12·75	10·43	1·87	10 60	19 93	
Guaranteed contents 2·06—2·88	2·5—3·5	5—6	3—4	2—3	10—13	8—10	3—4	.....	19 90	2169
Contents as found .. 1·74	2·11	6·35	2·05	2·77	11·17	8·40	3·72	12·25	20 34	
Guaranteed contents 2·5—3·25	3—4	.....	.....	.....	21—23	.....	.....	.....	.....	2170
Contents as found .. 2·38	2·89	.....	14·93	9·82	24·75	14·93	.....	5·15	27 46	
Guaranteed contents 2·06—2·88	2·5—3·5	5—6	3—4	2—3	10—13	8—10	1·5-2·5	.....	18 40	2171
Contents as found .. 1·40	1·70	6·62	2·81	2·32	11·75	9·43	1·77	12·00	18 26	
Guaranteed contents 2·06—2·88	2·5—3·5	3—6	3—4	2—3	10—13	8—10	3—4	.....	17 50	2172
Contents as found .. 1·76	2·14	5·50	3·65	2·35	11·50	9·15	3·66	11·95	20 96	
Guaranteed contents 4·10—5	5—6	5—7	2—3	1—2	8—12	7—10	7—8	.....	29 44	2173
Contents as found .. 3·75	4·50	5·35	2·10	1·70	9·15	7·45	7·12	9·95	29 11	
Guaranteed contents 3·3—4·12	4—5	6—8	2—3	1—2	9—13	8—11	7—8	.....	27 92	2174
Contents as found .. 3·65	4·44	5·75	2·90	1·87	10·52	8·65	7·87	7·70	30 93	
Guaranteed contents 2·4—3	3—4	5—6	1—2	1—2	7—10	6—8	10—12	.....	25 56	2175
Contents as found .. 2·73	3·30	5·37	1·95	2·05	9·37	7·32	10·29	8·40	28 78	
Guaranteed contents 0·82—1·65	1—2	5—6	2—3	1—2	8—10	7—9	1—2	.....	12 29	2176
Contents as found .. 0·87	1·05	5·40	2·02	2·00	9·42	7·42	1·31	11·85	13 57	
Guaranteed contents 1·65—2·47	2—3	.....	.....	2—3	8—11	6—8	7—9	.....	19 81	2177
Contents as found .. 2·87	3·49	6·20	1·30	1·00	8·50	7·50	10·13	9·15	29 06	
Guaranteed contents 2·47—3·29	3—4	.....	.....	.....	.....	.....	.....	.....	.....	2178
Contents as found .. 4·38	5·32	.....	15·75	9·50	25·25	15·75	.....	8·20	34 19	
Guaranteed contents 2·06—2·47	2·5—3	.....	.....	2—3	8—11	6—8	10—12	.....	24 20	2179
Contents as found .. 1·69	2·06	5·85	1·58	1·32	8·75	7·43	10·06	9·65	24 96	
Guaranteed contents 1·65—2·47	2—3	.....	.....	2—3	9—12	7—9	2—3	.....	15 91	2180
Contents as found .. 1·75	2·13	7·22	1·38	1·80	10·40	8·60	4·61	9·90	21 28	

DESCRIPTION OF STANDARD SAMPLES OF

Date when Advised.	Designation.	No. of Sample.	Manufacturer.	By whom Sent.	From what Materials Produced.
1907.					
Feb. 14	Potato Phosphate...	2181	Nova Scotia Fertilizer Co., Halifax, N.S.	Manufacturers....	Bone char-bone, dried blood, tankage meat, fish bone phosphate, sulphate of ammonia, nitrate of soda, muriate or sulphate of potash, sulphate acid.
" 14	Tankage.....	2182	Gunns Ltd. Toronto Junction.	"	.....
" 22	Soluble Bone.....	2183	Buffalo Fertilizer Co., Buffalo, N.Y.	"	Ammonia from animal matter tankage and blood phosphoric acid from phosphate rock, acidulated and from fine ground bone and the potash from muriate of potash
" 22	Extra Bone and Potash.	2184	" "	"	"
" 22	Fish Guano.....	2185	" "	"	"
" 22	Farmers Choice....	2186	" "	"	"
" 22	Ideal Wheat and Corn	2187	" "	"	"
" 22	Celery and Potato Special.	2188	" "	"	"
Mar. 3	Reid's Superphosphate	2189	Thomas Reid, St. John, N.B.	"	Calcined bones, old meat, fish offal, kainite, sulphate of ammonia, &c.
" 3	Slag..	2190	.. ..	Nova Scotia Fertilizer Co., Halifax.	.....
" 5	Stockbridge Special Complete Manure for Potatoes and Vegetables.	2191	Bowker Fertilizer Co., Boston.	Manufacturers.....	Bone, bone-black, phosphatic guano, bone phosphates, dried blood meat or fish, sulphate of ammonia or nitratre of soda, sulphate of potash or muriate of potash and sulphuric acid.
" 5	Bowker's Market Garden Fertilizer.	2192	"	"	"
" 5	Bowker's Vermont Phosphate.	2193	"	"	"
" 5	Bowker's Potato and Vegetable Phosphate.	2194	"	"	"
" 5	Bowker's Corn Phosphate.	2195	"	.....	"

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FERTILIZERS REGISTERED FOR THE YEAR 1908.

	Results of Analysis.										
	Nitrogen.		Phosphoric Acid.								
	Total including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in water.	Citric soluble.	Insoluble.	Total.	Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	No. of Sample.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c	p. c.	p. c.	p. c.	$ cts.	
Guaranteed contents	1·65–2 47	2 –3	.....	.....	2–3	9–12	7–9	4–5	.....	17 91	2181
Contents as found	1·68	2 04	8 75	.....	1 30	10·02	8 72	4 82	9 70	21 42	
Guaranteed contents	7 42	9 06	.....	.....	.....	.....	.....	.....	6 9	.....	2182
Contents as found	7 25	8 81	1 62	6 78	2 35	10 75	8 40	.....	12 15	33 31	
Guaranteed contents	.....	.....	.....	.....	.....	.....	14	.....	.....	15 40	2183
Contents as found	.....	.....	11 90	0·28	4 52	16 70	12 18	.....	8 20	15 91	
Guaranteed contents	.....	.....	.....	.....	.....	.....	10	8	.....	19 00	2184
Contents as found	0 49	0 60	10 05	1·17	4 20	15·42	11 22	8 11	5 10	21 38	
Guaranteed contents	0·82	1	.....	.....	.....	.....	9	2	.....	14 52	2185
Contents as found	0 98	1 19	6·62	0·93	4 30	11 85	7·55	2 74	12 25	16 13	
Guaranteed contents	0 82	1	.....	.....	.....	.....	8	5	.....	16 59	2186
Contents as found	1 01	1 22	5·75	0 80	3 30	9 85	6 55	6 18	14 40	18 38	
Guaranteed contents	1·65	2	.....	.....	.....	.....	9	5	.....	20 51	2187
Contents as found	1·69	2 06	5·37	1 55	3 75	10 67	6 92	4 84	10 45	19 86	
Guaranteed contents	1 65	2	.....	.....	.....	.....	8	10	.....	24 41	2188
Contents as found	1·72	2 09	1·62	1 40	3 65	9 67	6·02	10 81	13 60	24 84	
Guaranteed contents	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2189
Contents as found	0·69	0·83	2 37	3·20	4 35	9 92	5 57	.....	16 55	10 02	
Guaranteed contents	.....	.....	.....	.....	.....	.....	16	.....	.....	17 60	2190
Contents as found	.....	.....	.....	.....	5 37	17 60	12 23	.....	.....	15 06	
Guaranteed contents	3 29	4	.....	.....	.....	7	6	10	.....	28 09	2191
Contents as found	3 11	3·77	5·37	1·88	1 25	8 50	7·25	9·69	7 15	29 15	
Guaranteed contents	2 47	3	.....	.....	.....	7	6	10	.....	25 30	2192
Contents as found	2·72	3 30	1·07	2 06	2 02	8 75	6·73	10·13	6·55	27 85	
Guaranteed contents	2 47	3	.....	.....	.....	10	8	4	.....	21 80	2193
Contents as found	2 65	3·11	4 92	3 13	2·35	10 40	8 05	4 82	12 80	23 88	
Guaranteed contents	1·65	2	.....	.....	.....	9	8	2	.....	16 71	2194
Contents as found	1 68	2·04	6·12	2 81	2 77	11·70	8·93	2 10	9·60	19 08	
Guaranteed contents	1 65	2	.....	.....	.....	9	8	2	.....	16 71	2195
Contents as found	1 74	2 11	5 92	2 86	2 37	11 15	8 78	2 43	11 30	19 31	

DESCRIPTION OF STANDARD SAMPLES OF

Date when Advised.	Designation.	No. of Sample.	Manufacturer.	By whom Sent.	From what Materials Produced.
1907.					
March 5	Bowker's Square Brand Bone and Potash.	2196	Bowker Fertilizer Co., Boston.	Manufacturers.....	Bone, bone-black, phosphate guano, bone phosphates, dried blood meat or fish, sulphate of ammonia or nitrate of soda, sulphate of potash or muriate of potash and sulphuric acid.
" 5	Bowker's Farm and Garden Phosphate.	2197	" "	"	"
" 5	Bowker's Sure Crop Phosphate.	2198	" "	"	"
" 5	Bowker's Potash Bone Phosphate.	2199	" "	"	"
" 5	Bowker's 6% Potato Fertilizer.	2200	" "	"	"
" 5	Bowker's 10% Muriate	2201	" "	"	"
" 5	Bowker's Superphosphate with Potash.	2202	" "	"	"
" 5	Bowker's Fresh Ground Bone.	2203	" "	"	"
" 5	Bowker's Nitrate of Soda.	2204	" "	"	"
" 5	Bowker's Muriate of Potash.	2205	" "	"	"
" 5	Bowker's Dissolved Bone-black.	2206	" "	"	"
" 7	H. Fertilizer..	2207	W. Harris & Co., Toronto	"	Flesh and blood...
" 7	Bone Meal.....	2208	" "	"	Bones.....
" 9	Imperial Superphosphate.	2209	Provincial Chemical Fertilizer Co., St. John, N.B.	"	" .....
" 9	Complete Aroostook Potato.	2210	" "	"	" .....
" 9	Bone, Blood and Potash.	2211	" "	"	" .....
" 9	Special Potato Phosphate.	2212	Provincial Chemical Fertilizer Co., St. John, N.B.	"	.....
" 9	Victor Guano.....	2213	" "	"	.....
" 9	Bone Meal.....	2214	" "	"	.....
" 10	Virginia Tobacco Fertilizer.	2215	Am. Agr. Chem. Co., Buffalo Sales Dept.	"	Animal matter mineral phosphates and potash, all treated with sulphuric acid.

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FERTILIZERS REGISTERED FOR THE YEAR 1908.

—	Results of Analysis.										No. of Sample.
	Nitrogen.		Phosphoric Acid.								
	Total including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in water.	Citric soluble.	Insoluble.	Total.	Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	$ cts.	
Guaranteed contents	1·65	2	...	...	...	7	6	2	...	14 51	2196
Contents as found ..	1·65	2·01	6·20	1·82	2·85	10·87	8·02	2·53	7·85	18 44	
Guaranteed contents	1·65	2	...	...	...	9	8	2	...	16 71	2197
Contents as found ..	1·71	2·07	6·62	1·96	2·62	11·20	8·58	2·60	8·05	19 30	
Guaranteed contents	0·82	1	...	...	...	9	8	2	...	13 89	2198
Contents as found ..	0·91	1·10	5·75	3·13	1·57	10·45	8·88	1·95	11·15	15 86	
Guaranteed contents	0·82	1	...	...	...	8	6	2	...	11 99	2199
Contents as found ..	0·98	1·19	3·42	4·38	2·00	9·80	7·80	2·20	14·25	15 05	
Guaranteed contents	0·82	1	...	...	...	7	6	6	...	15 69	2200
Contents as found ..	0·84	1·02	5·70	1·85	1·45	9·00	7·55	6·14	10·15	18 31	
Guaranteed contents	0·82	1	...	...	...	6	5	10	...	18 59	2201
Contents as found ..	0·81	0·99	4·65	2·67	1·05	8·37	7·32	9·84	9·90	21 43	
Guaranteed contents	...	...	...	...	...	11	10	2	...	13 30	2202
Contents as found ..	0·78	0·96	5·57	3·98	3·50	13·05	9·55	2·10	10 00	16 86	
Guaranteed contents	2·47	3	...	...	...	22·18	...	...	...	...	2203
Contents as found ..	2·29	2·79	...	15·55	8·75	24 30	15·55	...	4·55	27 52	
Guaranteed contents	14·83	18·00	...	...	...	...	...	...	...	50 42	2204
Contents as found ..	14·62	17·75	...	...	...	...	...	...	0·88	49 71	
Guaranteed contents	...	...	...	...	...	...	...	50	...	50 00	2205
Contents as found ..	...	...	...	...	...	...	...	48·20	2·30	48 20	
Guaranteed contents	...	...	...	...	...	...	15	...	...	16 50	2206
Contents as found ..	Trace.	Trace.	12·10	2·90	0·25	15·25	15·00	...	14·05	17 79	
Guaranteed contents	7·13	8·66	...	...	...	8·43	...	...	...	...	2207
Contents as found ..	7·03	8·53	0·20	5·35	2·25	7·80	5·55	...	8·35	29 30	
Guaranteed contents	1·96	2·38	...	...	...	27·23	...	...	...	...	2208
Contents as found ..	1·43	1·73	...	17·05	8·75	25·80	17·05	...	5·30	25 96	
Guaranteed contents	2·80	3·4	...	...	...	...	10·3	2·4	...	23 25	2209
Contents as found ..	2·52	3·06	6·75	3·18	2·12	12·05	9·93	2·06	8·90	22 86	
Guaranteed contents	3·02	3·67	...	...	...	...	8·57	9·72	...	29 42	2210
Contents as found ..	3·09	3·76	4·75	2·17	0·85	7·77	6·92	10·94	7·65	29 79	
Guaranteed contents	1·96	2·38	...	...	...	...	8·69	5·00	...	21 22	2211
Contents as found ..	1·96	2·38	4·20	4·00	2·00	10·20	8·20	5·07	3·70	21 77	
Guaranteed contents	2·55	3·10	...	...	...	...	8·15	7·20	...	24 81	2212
Contents as found ..	2·31	2·81	4·67	2·46	0·87	8·00	7·13	7·37	9·30	23 80	
Guaranteed contents	1·96	2·38	...	...	...	...	10·47	3·84	...	21 63	2213
Contents as found ..	2·03	2·47	4·45	4·78	2·12	11·35	9·23	3·65	4·90	21 38	
Guaranteed contents	3·21	3·90	...	...	...	24·40	...	...	...	...	2214
Contents as found ..	2·66	3·23	—	13·70	8·95	22·65	13·70	...	6·15	26 27	
Guaranteed contents	1·65—2·47	2 to 3	6—7	2—3	1—2	9—11	8—10	4—5	...	19 31	2215
Contents as found ..	2·67	3·25	4·55	6·55	1·05	12·15	11·10	8·14	2·80	30 20	

DESCRIPTION OF STANDARD SAMPLES OF

Date when Advised.	Designation.	No. of Sample.	Manufacturer.	By whom Sent.	From what Materials Produced.
1907.					
Mar. 14	Bilston Basic Slag	2216	Alfred Hickman Co'y., Bilston, England.	E. E. McNutt, Truro, N. S.	
" 19	Sulphate of Ammonia	2217		Mathias O. Ferland, Berthierville, Que.	
" 19	Celery, Onion and Truck Fertilizer.	2218		" "	
" 19	Croker's H.G Special Fertilizer.	2219		" "	
" 19	Muriate of Potash	2220		" "	
" 19	Sulphate of Potash	2221		" "	
" 19	Eureka Special Tobacco.	2222		" "	
" 20	No. 1 Superphosphate.	2223	Capelton Chemical Fertilizer Co., Buckingham, Que.	Capelton Chemical Fertilizer Co., Buckingham, Que.	
" 20	Royal Canadian	2224	" "	" "	
" 20	Reliance	2225	" "	" "	
" 20	Victor	2226	" "	" "	
" 20	Leeds Thomas Phosphate Flour.	2227		Davison Hill, Onslow Station, N. S.	
" 25	Ground Bone	2228		Brackman & Ker Milling Co., Vancouver.	
April 6	Bone Meal	2229			
" 7	Dried Tankage	2230	Canadian Packing Co., London, Ont.	Themselves	Waste general of packing house.
" 9	Fertilizer	2231	Joseph O'Mara, Palmerston, Ont.	Himself	Blood, offal and tankage of hogs.
" 18	Fertilizer 'A'	2232	Victoria Chemical Co., Ltd., Victoria, B.C.	Themselves	Nitrate of soda, muriate of potash and superphosphate of lime.
" 18	Fertilizer 'B'	2233	" "	"	" "
" 18	Fertilizer 'C'	2234	" "	"	Muriate of potash and superphosphate of lime.
" 18	Fertilizer 'D'	2235	" "	"	Nitrate of soda, muriate of potash and superphosphate of lime.
" 18	Superphosphate of Lime.	2236	" "	"	Spent bone, charbone and sulphuric acid.
" 18	Nitrate of soda	2237	" "	"	
" 18	Sulphate of potash	2238	" "	Imported from Chili	
" 18	Muriate of potash	2239	" "	" Imported from Germany	
				" " Imported from Germany	

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FERTILIZERS REGISTERED FOR THE YEAR 1908.

Results of Analysis.												
Nitrogen.		Phosphoric Acid.					Potash.	Moisture.	Relative value per ton of 2,000 lbs.	No. of Sample.
Total including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in water.	Citric soluble.	Insoluble.	Total.	Total available				
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	$ cts.	
										2216
Guaranteed contents										
Contents as found		—	14·25	6·10	20·35	14·25			17 51	
Guaranteed contents									81 60	2217
Contents as found	24—25								69 36	
	20·40	24·78								
Guaranteed contents						4		12		2218
Contents as found	4 11	5								
Guaranteed contents	4 07	4 95	3·67	1·83	1·00	6·50	5·50	12·06	9·45	32 62
Contents as found	1 65	2				8		4		2219
	1 93	2 35	6·67	1·93	1·10	9·70	8·60	4 11	10·20	21 13
Guaranteed contents								50—55		50 55 2220
Contents as found								55·28	1·55	55 28
Guaranteed contents								48—50		48 50 2221
Contents as found								49—56	1·00	49 56
Guaranteed contents	2·47	3				4		4		2222
Contents as found	2·27	2·75	1·40	2·50	2·50	6·40	3·90	4·05	5·90	16 95
Guaranteed contents						10—14				2223
Contents as found			10·05	2·58	1·87	14·50	12·63		8·75	15 46
Guaranteed contents	3·29—4 11	4 5				9—11		5—6		2224
Contents as found	1 12	5·00	9·65	0 17	1 30	11·12	9 82	6·27	10·15	32 44
Guaranteed contents	1 65—2·47	2—3				6—7		2—3		2225
Contents as found	2 77	3 66	5·00	3 45	1·17	9·62	8 45	2 89	5·40	22 45
Guaranteed contents	1 65—2·47	2—3				7—9		3—4		2226
Contents as found	2·69	3 26	6·65	1 12	1·35	9 12	7 77	3 70	6·20	22 46
Guaranteed contents										2227
Contents as found	—	—		13·35	7 00	20·35	13·35		0 55	16 79
Guaranteed contents	4·65	5 65					11·17	0 5		27 21 2228
Contents as found	4 72	5 73		14 00	8 00	22 00	14·00	0 67	6·15	33 57
Guaranteed contents	4 21					19 66				2229
Contents as found	3 21	3 89		16 50	9 75	26 25	16·50		1·10	31 35
Guaranteed contents										2230
Contents as found	5 45	6 61	0 12	9 13	2 00	11·25	9 25		8·22	28 23
Guaranteed contents	7 28	8 84				10 04		0·35	6·75	2231
Contents as found	7·03	8 53	0·12	7 93	1 95	10 00	8·05	0·59	7·35	32 54
Guaranteed contents	4 0					10 0		7 0		2232
Contents as found	3·12	3·79	9·25	0·62	None.	9 87	9 87	8·26	12·10	30 65
Guaranteed contents	3 5					9·00		11 00		2235
Contents as found	2 53	3·08	7·52	0·56	0·42	8 50	8 08	14·06	12·60	32 43
Guaranteed contents						12·5		11·00		2234
Contents as found			11·20	0·98	0 37	12·55	12 18	12·16		26 79
Guaranteed contents	2·5					10 0		11 00		2235
Contents as found	2 07	2·52	7·44	0 54	1·52	9·50	7 98	11·78	12 35	28 80
Guaranteed contents						16·00				2236
Contents as found			15·55	4 05	1 15	20 75	19·60			23 46
Guaranteed contents	16·0									2237
Contents as found	12·80	15·54							0·75	54 40 43 52
Guaranteed contents								50·00		50 00 2238
Contents as found								47 96		47 96
Guaranteed contents								50 00		50 00 2239
Contents as found								48·04		48·04

DESCRIPTION OF STANDARD SAMPLES OF

Date when advised.	Designation.	Number of Sample.	Manufacturer.	By whom Sent.	From what Materials Produced.
1907.					
April 18	Homestead, A Bone Black Fertilizer.	2240	Michigan Carbon Works, Detroit.	Themselves	Dissolved bone, black mineral phosphate, sulphate of ammonia, acidulated tankage, sulphate or muriate of potash
18	Homestead High G. Garden and Vegetable Fertilizer.	2241	" "	"	"
18	Homestead Sugar Beet Fertilizer.	2242	" "	"	"
18	A-1-Potash Fertilizer.	2243	" "	"	"
18	Desiccated Bone	2244	" "	"	Animal bone
18	Universal Fertilizer.	2245	Ontario Seed Co., Waterloo, Ont.	Manufacturers	Sulphate of potash
18	Engrais Chimique	2246	F. Canac Marquis, Quebec.	Dr. Fiset	Green bones and dead animals.
30	Bone Meal	2247	Portland Seed Co., Portland, Oregon.	J. R. Rennie, Vancouver, B.C.	
30	Bone Meal	2248	" "	M. J. Henry, Vancouver, B.C.	
May 5	General Blood, Bone and Potash Fertilizer.	2249	Michigan Carbon Works, Detroit.	Am. Amalgamated Chem. Co., Buffalo, N.Y.	Blood, bone and tankage, mineral phosphates and potash.
5	Best Potato and Garden Blood and Tankage Fertilizer	2250	" "	" "	"

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FERTILIZERS REGISTERED FOR THE YEAR 1908.

	Results of Analysis.										
	Nitrogen.		Phosphoric Acid.								
	Total including that of nitric acid or ammonia if present.	Total calculated as ammonia	Soluble in water.	Citric soluble.	Insoluble.	Total.	Total available	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	Number of Sample.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	$ cts.	
Guaranteed contents		2·5					8·00	1·50		67 30	2240
Contents as found	2·52	3·06	6·00	2·23	2·07	10·30	8·23	2·16	15·25	21 00	
Guaranteed contents		2·5					8·00	5·00		20 80	2241
Contents as found	2·06	2·30	6·00	2·70	1·80	10·50	8·70	5·27	14·00	22 98	
Guaranteed contents		1·5					9·00	2·00		16 12	2242
Contents as found	1·36	1·65	6·25	2·15	2·75	11·15	8·40	3·16	10·35	18 47	
Guaranteed contents		1·0					8·0	3·00		14 59	2243
Contents as found	0·81	1·00	6·12	1·58	2·67	10·37	7·70	3·03	13·15	15 67	
Guaranteed contents		1·5					25·00			31 47	2244
Contents as found	1·22	1·48	—	16·75	11·50	31·25	16·75		1·50	26 68	
Guaranteed contents	3·29–4·12	4–5	6–7	2–3	1·2	9–11	8–10	7–8		27 89	2245
Contents as found	3·15	3·94	8·17	0·68	1·15	11·00	9·85	5·34	8·00	26 95	
Guaranteed contents											2246
Contents as found	3·14	3·81	—	13·10	8·50	21·60	13·10		15·80	27 00	
Guaranteed contents	3·62					20·40					2247
Contents as found	3·58	4·35	None.	17·00	5·00	22·00	17·00		6·25	31 66	
Guaranteed contents	3·62					20·40					2248
Contents as found	2·96	3·59	None.	16·00	5·50	21·50	16·00		6·25	28 72	
Guaranteed contents	1·65	2·00	6–7	2–3	1–2	9–11	8–10	10–11		25 31	2249
Contents as found	2·31	2·81	7·02	1·68	1·30	10·00	8·70	9·92	9·75	28 44	
Guaranteed contents	2·06	2·50	6–7	2–3	1–2	9–11	8–10	6–7		22 70	2250
Contents as found	2·13	2·58	5·87	3·12	2·01	11·00	8·99	7·30	7·30	25 62	

APPENDIX B.

BULLETIN No 152—TINCTURE OF IODINE.

Ottawa, April 15, 1908.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I have the honour to report upon a collection of 75 samples of Tincture of Iodine, obtained throughout the Dominion in February last.

These have been examined in this Laboratory, with the following results:—

	Samples.
Genuine	60
Adulterated (containing no free Iodine)	1
" (containing methyl) alcohol	9
" (containing methyl alcohol) and being too low in Iodine	5
Total	75

This is the first occasion upon which Tincture of Iodine has been made the subject of Departmental inspection, and the following explanatory remarks may be necessary.

The British Pharmacopœia prescribes the following formula (Edition 1898).

	Imperial.	Metric.
Iodine	½ ounce	25 grammes.
Potassium Iodide	½ "	25 "
Distilled water	½ fl. "	25 cubic centimetres.
Alcohol (90 per cent) a sufficient quantity.		

Place the Iodine and Potassium Iodide in a bottle with the distilled water; when solution has been effected, add a sufficient quantity of the Alcohol to produce one pint (or one thousand cubic centimetres) of the Tincture.

The Tincture made from this formula contains free Iodine, 1 part in 40 parts, or 2·5 per cent.

Many foreign pharmacopœias prescribe a Tincture made without Potassium Iodide and with much larger amounts of free Iodine than the above. Thus, the French Codex prescribes 1 part in 12 parts (= 8·5 per cent) of Iodine; the United States Pharmacopœia prescribes 1 part Iodine in 14·3 (= 7·0 p.c.)

Tinctures of Iodine are prone to decomposition, and this is particularly true of those made without Potassium Iodide. These last are unsuited for internal use, since their Iodine is precipitated more or less, on dilution with water.

While many pharmacopœias authorize a higher percentage of free Iodine than does the British Pharmacopœia, none prescribe a lower amount. I have considered it permissible to allow samples to pass as genuine, in which the free Iodine does not fall below 2 per cent.

Five samples are found to contain less than 2 per cent of free Iodine; and it is noteworthy that all of these are made with Wood spirit (methyl alcohol) instead of Ethyl Alcohol, as prescribed by all the pharmacopœias. One sample (No. 26394) contains no free Iodine. Of course such a Tincture possesses none of the discutient properties of the pharmacopœal tincture. A decolorized tincture is described, unofficially, in the British Pharmacopœia, and in the United States (National) Dispensary, 1896; but should not be confounded with Tincture of Iodine.

Fourteen samples are found to contain methyl alcohol, in place of ethyl alcohol, as prescribed by all pharmacopœias.

The following is quoted from the 5th Edition of the National Dispensatory (U.S.A.) p. 157:—"The vapours of methyl alcohol, diffused in the air, give rise to headache, "dizziness, nausea and loss of appetite. It was at one time employed as a stimulant in "pulmonary consumption, chronic catarrh, dyspepsia, and verminous affections, but is "now entirely disused."

There can be no doubt that the substitution of Wood Spirit (methyl alcohol) for Ethyl alcohol, constitutes an adulteration under the Act

I beg to recommend the publication of this report as Bulletin No. 152.

I have the honour to be, Sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

EXAMINATION OF TINCTURE OF IODINE AT THE INLAND

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
1908.						
			DISTRICT OF NOVA SCOTIA—			
Feb. 13	Tincture of Iodine ..	33607	National Drug Co., Halifax, N.S.	6 oz....	50	Vendors .....
" 18	" ..	33608	Jas. Walsh, Halifax, N.S..	6 "	60	Vendor .....
" 18	" ..	33609	A. A. Thompson, Halifax, N.S.	6 "	60	" .....
" 21	" ..	33610	R. M. Jackson, New Glasgow, N S.	6 "	50	" .....
" 22	" ..	33611	R. J. McKenzie, Pictou, N.S.	6 "	60	" .....
			DISTRICT OF PRINCE EDWARD ISLAND—			
Feb. 17	Tincture of Iodine ..	31225	G. E. Hughes, Charlottetown.	6 oz....	90	G. E. Hughes, Charlottetown.
" 18	" ..	31226	P. N. Enman, Summerside	6 "	75	P. N. Enman, Summerside
" 18	" ..	31227	Wm. Kennedy, Summerside	6 "	60	Can. Drug Co., St. John, N.B.
" 19	" ..	31228	Jardine & Bernard, Kensington.	6 "	60	Nat. Drug Co., Halifax...
" 20	" ..	31229	Reddin Bros., Charlottetown.	6 "	60	Reddin Bros., Charlottetown.
			DISTRICT OF NEW BRUNSWICK—			
Feb. 12	Tincture of Iodine ..	29644	Nat. Drug & Chem. Co., Ltd., Mill St.. St. John, N.B.	6 oz....	60	Nat. Drug & Chem. Co., Ltd., St. John, N.B.
" 20	" ..	29645	Sussex Mercantile Co., Ltd., Main St., Sussex, N. B.	6 "	90	Sussex Mercantile Co., Ltd., Sussex, Kings Co., N.B.
Mar. 9	" ..	29646	D. W. C. Stevens, Main St., Woodstock, N.B.	6 "	60	D. W. Stevens, Vendor...
" 10	" ..	29647	C. A. McKeen, Woodstock, N.B.	6 "	75	C. A. McKeen, Vendor...
" 10	" ..	29648	Garden Bros., Woodstock..	6 "	60	Garden Bros., Vendors ...
			DISTRICT OF QUEBEC—			
Feb. 10	Tincture of Iodine ..	26378	A. E. Michon, Montmagny	6 oz....	60	W. Brunet & Cie, Quebec.
" 12	" ..	26390	E. O. Cloutier, Rivière du Loup en Bas.	6 "	60	Lyman & Son Co.....
" 12	" ..	26393	Dr. F. E. Gilbert, Fraserville.	6 "	60	" .....
" 12	" ..	26394	Dr. T. Kane, Rivière du Loup Station.	6 "	60	" .....
" 12	" ..	26395	" " ..	6 "	60	" .....

SESSIONAL PAPER No. 14

REVENUE LABORATORY, 317 QUEEN ST., OTTAWA, ONT.

Inspector's Report.	Results of Analysis.							Remarks and Opinion of the Chief Analyst.
	Iodine per 100 CC.	Alcohol per 100 CC.	Distillate to 5 Volumes. Density.	Alcohol (weight.)	Refractometer 20° C.	Equivalent Ethyl Alcohol.	Methyl Alcohol.	
			p. c.	p. c.		p. c.	p. c.	
R. J. WAUGH, INSPECTOR.								
.....	2·46	83·05	0·9796	13·46	37·7°	13·48	None	Genuine.
.....	5·02	85·40	0·9886	6·86	25·5°	6·77	"	Genuine. This Distillate was made to 10 volumes.
.....	2·41	85·40	0·9791	13·85	38·6°	13·97	"	Genuine.
.....	2·69	81·20	0·9890	13·15	37·2°	13·22	"	"
.....	2·36	84·45	0·9793	13·69	38·6°	13·97	"	"
THEO. MOORE, INSPECTOR.								
.....	2·41	95·90	0·9771	15·58	24·0°	.....	*16·24	Adulterated with wood alcohol.
.....	2·22	81·20	0·9799	13·23	38·6°	13·97	None	Genuine.
.....	2·01	85·85	0·9790	13·92	39·0°	14·19	"	"
.....	5·52	89·60	0·9879	7·33	26·3°	7·22	"	" Distillate made to 10 volumes.
.....	3·57	85·85	0·9790	13·92	38·3°	13·79	"	Genuine.
J. C. FERGUSON, INSPECTOR.								
.....	6·60	89·60	0·9784	14·45	40·5°	14·48	"	Genuine.
.....	2·92	84·45	0·9792	13·77	38·5°	13·96	"	"
Mfg. by Vendors, per B. P. Formula.	2·80	93·15	0·9777	15·12	23·6°	.....	*15·87	Adulterated with wood spirit.
"This sample may be a little stronger than B. Formula."	2·66	87·95	0·9786	14·27	39·0°	14·19	None	Genuine.
Mfg. by Vendors, per B. P. Formula.	3·83	79·30	0·9803	12·92	37·2°	13·22	"	"
E. BELAND, INSPECTOR.								
.....	6·07	85·88	0·9790	13·92	39·0°	14·19	"	Genuine.
.....	2·46	84·00	0·9794	13·62	38·0°	13·64	"	"
.....	2·66	82·60	0·9797	13·38	37·3°	13·28	"	"
.....	None	53·85	0·9860	8·68	29·0°	8·64	"	No free iodine. Adulterated as containing no free iodine.
.....	2·63	83·50	0·9795	13·54	38·3°	13·79	"	Genuine.

EXAMINATIONS OF TINCTURE OF IODINE AT THE INLAND

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
1908.						
			DISTRICT OF ST. HYACINTHE—			
Feb. 13	Tincture of Iodine.	27951	Dr. Daignault, Acton Vale	6 oz....	90	Lyman Sons & Co., Montreal.
" 18	" ..	27952	Frazers Drug Store, Sherbrooke.	6 "	50	Vendor.....
" 19	" ..	27953	A. E. Baldwin, Coaticook..	6 "	50	A. W. Sanborn, New York
" 21	" ..	27954	Dr. A. G. H. Beique, Magog	6 "	50	Vendor...
" 24	" ..	27955	Gast. St. Jacques & Cie, St. Hyacinthe.	6 "	50	"
			DISTRICT OF MONTREAL—			
Feb. 14	Tincture of Iodine..	32569	Leo. G. Ryan, 545 Notre Dame West, Montreal.	6 oz ...	50	Vendor.....
" 14	" ..	32570	S. F. Emery, 607 Notre Dame West, Montreal.	6 " ...	50	Not known.....
" 18	" ..	32571	Mrs. St. Louis, Druggist, Valleyfield, P.Q.	6 "	60	Lyman Sons & Co., Montreal.
" 19	" ..	32572	S. Moisan, 661 St. Lawrence B., Montreal.	6 "	60	Not known.....
" 22	" ..	32573	Ranson Pharmacy Co., 407 St. Joseph St., Lachine, P.Q.	6 "	60	National Drug & Chem. Co.
			DISTRICT OF OTTAWA—			
Feb. 17	Tincture of Iodine..	34121	W. A. Cameron, Renfrew..	6 oz. ..	50	Vendor.
" 18	" ..	34122	M. Patterson, Almonte ...	6 "	60	"
" 21	" ..	34123	G. F. Brethour, Ottawa....	6 "	75	"
21	" ..	34124	P. J. Nolan, Ottawa	6 " ...	75	"
" 21	" ..	34125	Allan & Cochrane, Bank St., Ottawa.	6 " . ..	75	Vendors....

SESSIONAL PAPER No. 14

REVENUE LABORATORY 317 QUEEN ST., OTTAWA, ONT.

Inspector's Report.	Results of Analysis.								Remarks and Opinion of the Chief Analyst.
	Iodine per 100 CC.	Alcohol per 100 CC.	Distillate to 5 Volumes.						
			Density.	Alcohol (weight.)	Refractometer 20° C.	Equivalent Ethyl Alcohol.	Methyl Alcohol.		
			p.c.	p.c.		p.c.	p.c.		
J. C. ROULEAU, INSPECTOR.									
Labelled Tr. Iodine, Poison. Prepared according to British Pharmacopœia by Lyman Son & Co., Montreal.	2·32	82·15	0·9798	13·31	37·4	13·35	None	Genuine.	
From ½ gal. bottle marked "Tr. Iod.	2·41	86·85	0·9788	14·09	39·0	14·19	"	"	
Bottled labelled Tr. Iodi.	2·52	87·40	0·9787	14·18	39·2	14·30	"	"	
Bottled labelled Tr. Iodine Co. made according to Pharm. Anglaise.	2·83	81·65	0·9799	13·23	37·3	13·28	"	"	
Bottled labelled Tr. Iodine made according to Pharm. Anglaise.	2·59	86·85	0·9786	14·27	39·2	14·30	"	"	
J. J. COSTIGAN, INSPECTOR.									
. . .	2·59	86·30	0·9789	14·00	39·0	14·19	None	Genuine.	
. . . . .	1·94	96·18	0·9770	15·63	24·0	16·18	*	Adulterated, containing wood spirit and too low iodine.	
. . . . .	2·51	81·20	0·9804	12·85	37·2	13·22	None	Genuine.	
. . . . .	2·60	94·90	0·9773	15·42	23·5	. . .	15·42	*	Adulterated, as containing wood spirit.
. . . . .	4·87	97·85	0·9766	15·95	24·5	. .	16·33	*	" "
J. A. RICKEY, INSPECTOR.									
Taken from stock bottle on shelf.	2·84	95·4	0·9772	15·50	24·0	. . . . .	16·17	*	Adulterated, as containing wood spirit.
" . .	1·08	97·45	0·9768	15·83	24·5	. . .	16·94	*	Adulterated, as containing wood spirit and too low in iodine.
Vendor said sample was the ordinary B.P. Tincture of Iodine.	2·10	89·05	0·9784	14·45	39·2	14·31	None	Genuine.	
Taken from stock bottle on shelf labelled Tr. Iodine.	2·47	85·40	0·9794	13·62	38·1	13·69	"	"	
Bottles labelled Tr. Iodine, Poison. Allen & Cochrane, 3 stores, Red Cross Druggists, Ottawa, Ont.	2·55	84·00	0·9788	14·09	38·8	14·08	"	"	

EXAMINATIONS OF TINCTURE OF IODINE AT THE INLAND

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
1908.						
			DISTRICT OF KINGSTON—			
Feb. 10	Tincture of Iodine..	33067	W. W. Gibson, King St., Kingston.	6 oz...	40	W. W. Gibson, Kingston.
" 10	" ..	33068	H. Wade, King St., Kingston.	6 "	90	H. Wade, Kingston .....
" 10	" ..	33069	H. Skinner, Princess St., Kingston.	6 "	60	Nat. Drug Co., Montreal..
" 10	" ..	33070	A. P. Chown, Princess St., Kingston.	6 "	75	A. P. Chown, Kingston...
" 10	" ..	33071	L. T. Best, Princess St., Kingston.	6 "	60	L. T. Best, Kingston.....
			DISTRICT OF TORONTO—			
Feb. 24	Tincture of Iodine...	35033	J. A. Zimmerman, corner Bartan & Wentworth, Hamilton.	6 oz.. .	50	Vendor.....
" 24	" ..	35034	A. C. Drewery, 108 James St., south, Hamilton.	6 " .. .	75	" .....
" 27	" ..	35035	P. M. Dwyer, 53 St. Paul St., St. Catharines.	6 "	50	" .....
" 28	" ..	35036	A. Land, Main St., Niagara Falls, south.	6 "	50	" .....
Mar. 3	" ..	35037	The Albert Thompson Co., Ltd., Toronto.	6 " . ..	45	Vendors . .....
			DISTRICT OF LONDON—			
Feb. 11	Tincture of Iodine...	30464	Alfred Dunlop, Druggist, Goderich.	6 oz ...	60	Alfred Dunlop, Druggist, Goderich.
" 14	" ..	30474	Charles Abrahart, Druggist, Seaforth.	3 " ...	45	Charles Abrahart, Druggist, Seaforth.
" 25	" ..	30480	W. A. McIntire, Druggist, St. Mary's.	6 " ...	60	Vendor.....
" 29	" ..	30490	R. A. Hunter, Druggist, Listowell.	6 "	60	" .....
" 28	" ..	30486	W. B. Barley, Druggist, Mitchell.	6 "	75	" .....
			DISTRICT OF WINDSOR—			
Feb. 18	Tincture of Iodine...	34501	H. O. Fleming..... ...	6 oz....	60	H. O. Fleming, Windsor..
" 19	" ..	34512	G. H. Gunn & Co., Chatham.	6 "	35	G. H. Gunn & Co., Chatham.
" 19	" ..	34513	I. L. Davis, Chatham.....	6 "	60	I. L. Davis, Chatham.....
" 20	" ..	34519	Meek & Vening, London..	6 "	60	Meek & Vening, London..
April 10	" ..	34529	E. W. Boyle, London, east	6 "	60	Vendor .....

SESSIONAL PAPER No. 14

REVENUE LABORATORY, 317 QUEEN ST., OTTAWA, ONT.

Inspector's Report.	Results of Analysis.							Remarks and Opinion of the Chief Analyst.
	Iodine per 100 CC.	Alcohol per 100 CC.	Distillate to 5 Volumes. Density.	Alcohol (weight.)	Refracto-meter 20° C.	Equivalent Ethyl Alcohol.	Methyl Alcohol.	
			p. c.	p. c.		p. c.	p. c.	
J. HOGAN, INSPECTOR.								
.....	2·59	81·20	0·9801	13·08	38·6	13·97	None.	Genuine.
.....	2·92	85·85	0·9793	13·69	38·5	13·92	"	"
.....	2·74	76·98	0·9869	11·97	22·2	. .	13·41	*Adulterated, containing wood spirit.
.....	2·51	54·55	0·9858	8·79	22·2	.	13·41	* " "
.....	1·40	86·55	0·9788	14·09	23·1		14·80	* " " and too low in iodine.
H. J. DAGER, INSPECTOR.								
Sample taken from stock bottle on shelf.	2·89	86·85	0·9788	14·09	39·0	14·19	None.	Genuine.
Sample taken from dispensing room.	2·57	99·85	0·9764	16·15	24·2	.	16·48	*Adulterated, containing wood spirit.
Sample taken from stock bottle on shelf.	2·44	94·90	0·9873	7·73	27·4	7·78	None.	Genuine. Distillate was made to 10 volumes.
" "	5·59	88·80	0·9882	7·13	25·8	6·91	"	Genuine. Distillate was made to 10 volumes.
Sample taken from bottle on shelf of shop.	0·50	82·35	0·9797	13·25	25·9	.	19·34	*Adulterated, containing wood spirit, and being too low in iodine.
T. KIDD, INSPECTOR.								
Made by vendor in his shop.	2·93	86·30	0·9790	13·92	38·3	13·80	None.	Genuine.
" "	4·52	88·00	0·9883	7·07	25·5	6·78	"	" Distillate made to 10 volumes.
.....	1·86	89·62	0·9783	14·54	24·1		16·26	*Adulterated with wood spirit, and too low in iodine.
.....	2·45	84·00	0·9794	13·62	38·3	13·80	None.	Genuine.
.....	6·35	88·80	0·9882	7·13	26·0	7·06	"	" Distillate made to 10 volumes.
J. TALBOT, INSPECTOR.								
.....	2·80	85·40	0·9790	13·92	38·6	13·97	None.	Genuine.
.....	2·30	84·90	0·9788	14·09	39·0	14·19	"	"
.....	2·21	81·90	0·9792	13·77	38·2	13·74	"	"
.....	2·03	81·20	0·9800	13·15	37·0	13·10	"	"
.....	2·46	75·60	0·9812	12·23	35·7	12·30	"	"

EXAMINATION OF TINCTURE OF IODINE AT THE INLAND

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
1908.						
			DISTRICT OF MANITOBA—			
Feb. 19	Tincture of Iodine	25877	Elmwood Drug Store, Elmwood P.O., Winnipeg.	6 oz	60	Martin, Bole, Wynne Co., Winnipeg, Man.
" 19	"	25878	J. H. Leo, Elmwood, Winnipeg.	6 "	75	" "
" 20	"	25879	W. J. Carson, Killarney, Man.	6 "	75	Vendor
" 24	"	25880	Glenboro Drug Store, Glenboro, Man.	6 "	60	"
" 28	"	25881	The Pulford Leonard Drug Co., Carman, Man.	6 "	60	Vendors
			DISTRICT OF CALGARY—			
Feb. 21	Tincture of Iodine	28892	O. H. Bott, Calgary	6 oz	1·20	Vendor
" 21	"	28893	Jas. Findlay & Co., Ltd., Calgary.	6 "	1·20	Lyman Sons & Co., Montreal.
" 22	"	28894	Curry & Cope, Calgary	6 "	1·20	Vendors
" 22	"	28895	W. Maclean, Calgary	6 "	1·20	Vendor
" 21	"	28896	Oliver Brothers, Calgary	6 "	1·20	Vendors
			DISTRICT OF VANCOUVER—			
Feb. 17	Tincture of Iodine	34227	John Reid, Granville St., Vancouver, B.C.	6 oz	1·50	Vendor
" 17	"	34228	Terry & Marett, Hastings St., Vancouver, B.C.	6 "	75	Vendors
" 17	"	34229	E. S. Knowlton, Cor. Hastings & Carrall Sts., Vancouver, B.C.	6 "	1·50	Vendor
" 18	"	34230	Woodward Departemental Stores, Cor. Abbot and Hastings Sts., Vancouver B.C.	6 "	50	Vendors
" 18	"	34231	Brown & Beaton, Westminster Ave., Vancouver B.C.	6 "	1·00	"
			DISTRICT OF VICTORIA—			
Feb. 28	Tincture of Iodine	34865	D. E. Campbell, Victoria, B.C.	6 oz	60	Vendor
" 28	"	34867	Wm. Jackson & Co., Victoria, B.C.	6 "	1·00	Vendors
" 28	"	34870	Geo. A. Fraser, Victoria, B.C.	6 "	75	Vendor
" 28	"	34872	Dean & Hissocks, Victoria, B.C.	6 "	75	Vendors
" 29	"	34873	G. Morison & Co., Victoria, B.C.	6 "	75	"

SESSIONAL PAPER No. 14

REVENUE LABORATORY, 317 QUEEN ST., OTTAWA, ONT

Inspector's Report.	Results of Analysis.								Remarks and Opinion of the Chief Analyst.
	Iodine per 100 C.C.	Alcohol per 100 C.C.	Distillate to 5 Volumes.						
			Density.	Alcohol (weight.)	Refractometer 20° C.	Equivalent Ethyl Alcohol.	Methyl Alcohol.		
			p.c.	p.c.		p.c.	p.c.		
A. C. LARIVIERE, INSPECTOR.									
....	2·83	81·20	0·9800	13·15	37·4	13 33	None.	Genuine.	
....	2 67	80·75	0·9801	13·08	37·2	13 22	"	"	
....	2·63	81 65	0·9799	13·23	37·3	13·26	"	"	
....	3·13	83 50	0·9795	13 54	38 1	13 69	"	"	
....	2 67	86 30	0·9789	14·00	39 0	14 19	"	"	
R. W. FLETCHER, INSPECTOR.									
....	2·48	87 40	0·9787	14 18	39 3	14 35	None.	Genuine.	
. ...	2·72	80·25	0·9802	13 00	36 2	12·61	"	"	
... .	2 81	83 50	0·9795	13 51	37·4	13 33	"	"	
. ...	2 72	84 00	0·9794	13 62	38 2	13 74	"	"	
This sample is over standard.	3 59	84 00	0 9794	13 62	38 0	13 64	"	"	
J. F. POWER, INSPECTOR.									
....	2 38	84 45	0·9791	13 85	39 2	14 31	None.	Genuine.	
....	6·28	81 80	0·9799	13 23	37 2	13 22	"	"	
....	3·10	85 85	0 9781	14 73	39 5	14 46	"	"	
....	2 85	93·15	0 9777	15 12	24·0	. .	16 25	*Adulterated. Containing wood spirit.	
....	2·48	80 25	0·9802	13 00	36 2	12 61	None.	Genuine.	
D. O. SULLIVAN, INSPECTOR.									
Manufactured on premises of Vendor.	2·39	84·00	0 9794	13 62	38·0	13·61	None.	Genuine.	
" ..	2·84	77·45	0·9808	12·54	35 9	12·49	"	"	
" ..	2·65	77·45	0·9808	12 54	35·4	12 19	"	"	
" ..	2·16	84·45	0 9793	13 69	38·5	13·92	"	"	
" ..	2·71	83·65	0 9796	13·46	37·5	13·37	"	"	

* The alcohol is determined by use of Hehner's tables, as authorized for the Inland Revenue. These are constructed for Ethyl alcohol, taken as having a density of 0·7938 at 15·5° C. and lead to slight errors in cases where methyl alcohol is present.

APPENDIX C.

BULLETIN No. 153—GLACIAL ACETIC ACID.

Ottawa, April 28, 1908.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I beg to hand you a report upon 45 samples of Glacial Acetic Acid, purchased in retail drug shops, throughout the Dominion, in February of this year.

Of this number, 34 samples contain 95 per cent or more by weight, of real acetic acid, and these I have adjudged as genuine. The British Pharmacopœia, as well as that of the United States, requires Glacial Acetic Acid to contain 99 per cent of true acid. Exposure to moist air, from the frequent unstoppering of bottles, in the ordinary business of dispensing, may account for a dilution of a few units per cent, and I have considered it reasonable to regard as genuine all samples reaching 95 per cent strength.

Eleven (11) samples are decidedly below the standard strength, two samples falling to about 50 per cent.

It is to be remarked that the British Pharmacopœia, in addition to Glacial Acetic Acid, describes an Acetic Acid of 33 per cent strength, and a diluted Acetic Acid of 4·27 per cent.

I would respectfully recommend the publication of this report as Bulletin No. 153.

I have the honour to be, Sir,
Your most obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.	Inspector's Report.	Results of Analysis. Percentage acetic acid.	Results of Analysis. Specific gravity of Sample.	Remarks and Opinion of the Chief Analyst.
1908.	DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.									
Feb. 13	Glacial acetic acid.	33601	National Drug Co., Halifax, N.S.	8 oz.	30	Unknown	Said to be manufactured in England	96·12	1·058	Genuine.
" 18	"	33602	Brown Bros. & Co., Halifax, N.S.	8 "	40	National Drug Co., Halifax, N.S.		97·64	1·060	"
" 21	"	33603	A. C. Bell, New Glasgow, N.S.	8 "	25	" "		97·07	1·057	"
	DISTRICT OF PRINCE EDWARD ISLAND—T. MOORE, INSPECTOR.									
Feb. 15	Glacial acetic acid.	31219	A. W. Reddin, Charlottetown	8 oz.	30	National Drug Co., Halifax.		96·00	1·050	Genuine.
" 15	"	31220	McDonald & McKinnon, Charlottetown.	8 "	35	Lyman Sons & Co., Montreal		96·51	1·060	"
" 18	"	31221	A. W. P. Gourlie, Summerside.	8 "	30	Lyman, Knox & Co., Montreal		73·03	1·068	Below B. P. strength.
	DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.									
Feb. 12	Glacial acetic acid.	29638	Nat. Drug & Chem. Co., Ltd., Mill St., St. John, N.B.	8 oz.	72	Not known	Imported from Germany.	98·29	1·056	Genuine.
" 21	"	29639	Fairweather Brothers, Main St., Moncton, N.B.	8 oz.	30	Nat. Drug & Chem. Co., Ltd., St. John, N.B.		98·29	1·053	"
Mar. 7	"	29640	Hunt & McDonald, Fredericton, N.B.	8 "	30	Lyman Sons & Co., Montreal		93·96	1·060	"

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

Feb.	10	Glacial acetic acid.	26379	A. E. Michon, Montmagny	8 oz.	25	T. E. Livernois, Quebec			78	29	1·073	Below B. P. strength.
"	12	" ..	26391	E. O. Cloutier, Riviere du Loup en Bas.	8 " ..	50	W. Brunette & Cie., Quebec			76	10	1 072	"
"	12	" ..	26396	Dr. T. Kane, Rivière du Loup Station, P.Q.	8 oz.	40	Lyman Sons & Co .			98	58	1 062	Genuine.

DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.

Feb.	11	Glacial acetic acid.	27945	D. Belleau, Arthabaskaville .	8 oz..	30	Dr. Massicotte, Victoriaville.	Taken from a ½ gal. bottle marked "Acid Acetic Glacial."		97	56	1 061	Genuine.
"	20	" ..	27946	A. E. DuBerger, Thetford Mines.	8 " ..	40	Lyman, Knox & Co., Montreal			94	48	1 073	"
"	21	" ..	27947	Pharmacie Ostigny, St. Hyacinthe.	8 "	20	Lyman Sons & Co., Montreal			97	36	1 060	"

DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.

Feb.	13	Glacial acetic acid.	32566	Henri Lanctot, 820 St. Lawrence St., Montreal.	8 oz	35	Not known..			96	77	1 054	Genuine.
"	14	" ..	32567	Leo G. Ryan, 545 Notre Dame West, Montreal.	8 "	40	"			98	96	1·061	"
"	18	" ..	32568	Dr. J. E. St. Onge, Valleyfield, P.Q.	8 " .	30	Lyman Sons & Co., Montreal			81	13	1 076	Below B. P. strength.

DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.

Feb.	21	Glacial Acetic Acid	34115	E. M. Ahern, Ottawa	8 oz .	45	Lyman Sons & Co., Montreal	Taken from bottle marked Acid Acetic Glacial 99% Lyman Sons and Co., Mfg., Chemists, Montreal.		97	55	1 061	Genuine
"	21	" ..	34116	N. W. Campbell, Ottawa	8 "	35	Ottawa Drug Co., Ottawa .	Bottle Labelled Glacial Acetic Acid.		98	11	1·061	"
"	21	" ..	34117	J. L. Rochester, Ltd., Ottawa	8 " ..	45	Nat. Drug Co., Ottawa.	... Vendor said it was taken from bottle labelled 99 .		97	72	1 056	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.	Inspector's Report.	Results of Analysis. Percentage acetic acid.	Results of Analysis. Specific gravity of Sample.	Remarks and Opinion of the Chief Analyst.
1908.			DISTRICT OF KINGSTON—J. HOGAN, INSPECTOR.							
Feb. 10	Glacial Acetic Acid	33061	W. W. Gibson, King St., Kingston.	8 oz.	40	H. Skinner & Co., Kingston.		96·98	1·061	Genuine.
" 10	" ..	33062	H. Wade, King St., Kingston	8 " ..	40	Not known..		98·20	1·054	"
" 10	" ..	33063	H. Skinner, Princess St., Kingston.	8 " ..	40	Nat. Drug Co., Montreal.		97·08	1·063	"
			DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.							
Feb. 27	Glacial Acetic Acid	35027	Walker & Abbs, 295 St. Paul St., St. Catharines.	8 oz..	25	Dom. Drug Co., Hamilton.	Sample taken from dispensing room.	95·39	1·063	Genuine.
" 29	" ..	35028	H. W. Pew, 60 Erie Ave., Niagara Falls.	8 " ..	40	" "	" "	97·08	1·060	"
Mar. 3	" ..	35029	Chas. Wilson, 339 Bathurst St., Toronto.	8 " ..	40	Lyman Knox & Clarkson, Toronto.	Sample taken from stock bottle on shelf.	97·25	1·055	"
			DISTRICT OF LONDON—T. KIDD, INSPECTOR.							
Feb. 13	Glacial Acetic Acid	30470	E. J. Nasmith, Druggist, Stratford.	8 oz..	70	J. Winer, Hamilton		96·58	1·053	Genuine.
" 25	" ..	30482	Frank H. Smith & Co., Druggist, St. Marys.	8 " ..	80	London Drug Co., London, Ont.		51·25	1·036	Below B. P. strength.
" 11	" ..	30488	Walter McKibbon, Wingham	8 " ..	80	Lyman Bros. & Co., Toronto.		73·11	1·071	"

DISTRICT OF WINDSOR—J. TALBOT, INSPECTOR.

Feb.	18	Acetic Acid	34503	H. O. Fleming	8 oz.	40	London Drug Co.			98·39	1·058	Genuine.
"	19	"	34511	G. H. Gunn & Co., Chatham.	8 "	30	Winer & Co., Hamilton.			98·29	1·056	"
"	20	"	34517	Anderson & Nelles, London.	8 "	25	National Drug Co.			50·14	1·065	Below B. P. strength. May have been sold as Acetic Acid, not as Glacial Acetic Acid.

DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.

Feb.	20	Glacial Acetic Acid	25871	W. J. Carson, Killarney, Man.	8 oz.	40	Not given			67·71	1·081	Below B. P. strength.
"	24	"	25872	Glenboro Drug Store, Glenboro, Man.	8 "	35	The Bole Drug Co., Winnipeg, Man.			79·13	1·076	"
"	28	"	25873	The Pulford Leonard Drug Co., Carman, Man.	8 "	35	The Pulford Leonard Drug Co., Winnipeg, Man.			80·02	1·076	"

DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.

Feb.	21	Glacial Acetic Acid	28886	O. H. Bott, Calgary.	8 oz.	80	Martin, Bole Wynne, Winnipeg, Man.			95·93	1·057	Genuine.
"	21	"	28887	Jas. Findlay & Co., Calgary	8 "	80	Unknown			95·30	1·064	"
"	21	"	28888	W. Maclean, Calgary	8 "	80	Dom. Drug Co., Hamilton			97·38	1·053	"

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

Feb.	17	Glacial Acetic Acid	34221	J. W. Morrow, Cor. Hastings and Seymour Sts., Vancouver, B.C.	9 oz	35	Henderson Bros., Ltd., Vancouver, B.C.			99·01	1·050	Genuine.
"	17	"	34222	Woods Pharmacy, Cor. Hastings and Seymour Sts., Vancouver, B.C.	9 "	45	" "			98·58	1·050	"
"	17	"	34223	Wm. Harrisson Co., Ltd., Cor Granville and Pender Sts., Vancouver, B.C.	9 "	50	" "	80%		81·79	1·077	Below B. P. strength.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by Vendor.	Inspector's Report.	Results of Analysis.		Remarks and Opinion of the Chief Analyst.
				Quantity.	Cents.			Percentage acetic acid.	Specific gravity of Sample.	
1908.			DISTRICT OF VICTORIA—D. O. SULLIVAN, INSPECTOR.							
Feb. 28	Glacial Acetic Acid	34863	D. E. Campbell, Victoria, B.C.	8 oz.	30	Lyman & Son, Montreal, Que.	.....	97·08	1·060	Genuine.
" 28	"	34866	W. Jackson & Co., Victoria, B.C.	8 "	50	Henderson Bros., Victoria, B.C.	.....	96·59	1·056	"
" 28	"	34869	Geo. A. Fraser, Victoria, B.C.	8 "	30	" "	.....	96·09	1·049	"

APPENDIX D.

BULLETIN No. 154—OIL OF LEMON.

Ottawa, May 22, 1908.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I beg to hand you a report upon 45 samples of Oil of Lemon, collected in February of this year, through the various inspectoral districts of the Dominion.

The results of analysis do not enable me to arrive at well-defined conclusion regarding these samples. The characteristics of Oil of Lemon are so vaguely described in the pharmacopœias, and its composition has been so imperfectly worked out, that there is much difficulty in interpreting the analytical numbers. The present report must be regarded as a contribution to the study of Oil of Lemon, rather than as an application of methods of detecting adulteration. Definite methods can only be arrived at by the study of data such as are now submitted.

I beg to recommend the publication of this report as Bulletin No. 154; and I may add that the work herein recorded has been performed by Mr. A. Lemoine.

I have the honour to be, Sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

MEMORANDUM.

Oil of lemon (Oleum Limonis) is thus defined by the British Pharmacopœia (Edition of 1898) :—

Characters and Tests.—Pale yellow, with the fragrant odour of the lemon, and a warm bitterish aromatic taste. Specific gravity 0·857 to 0·860. It should rotate the plane of a ray of polarized light not less than 59° to the right in a tube 100 millimetres long; and if 100 volumes be fractionally distilled, the 10 volumes first collected should not produce a rotation differing by more than 2° from that produced by the original oil.

The Pharmacopœia of the United States (Seventh Decennial Revision, 1890) gives the following definition :—

A pale yellow, limpid liquid, having the fragrant odour of lemon, and an aromatic, somewhat bitterish taste.

Specific gravity: 0·857 to 0·860 at 15° C. (59° F.). Its optical rotation should not be less than 60° to the right in a 100 Mm. tube, and at a temperature of about 15° to 20° C. (59° to 68° F.).

Soluble in three times its volume of alcohol, the solution being neutral or slightly acid to litmus paper; also soluble, in all proportions, in absolute alcohol, carbon disulphide, or glacial acetic acid.

When kept for some time, the oil should not develop a terebinthinate odour or taste (absence of *oil of turpentine* or of *other oils consisting chiefly of pinene*).

The National Dispensatory (5th edition) defines the specific gravity as about 0·857 to 0·863 at 15° C., and fixes the initial boiling point at 160° C. Seven (7) volumes of alcohol is quoted as characteristic for complete solution.

Oil of lemon is largely (about 90 per cent) composed of terpenes, the chief of which is limonene ($C_{10}H_{16}$). W. A. Tilden found 76 per cent of citrene (=d—limonene), boiling at 176° C.; 6 per cent of cymene (1 : 4, methylisopropyl benzene) boiling at 175° C., and other hydrocarbons.

The value of oil of lemon, for flavouring purposes, is chiefly due to the presence of citral, an aldehyde which constitutes from 4 to 8 per cent of the oil. (Squire's Companion, p. 398). Citral boils at 224° to 228° C., and is concentrated in the higher fractions when the oil is distilled.

It is because of the large proportion of terpenes in oil of lemon, that flavouring extracts must be made with strong alcohol. When too little alcohol is employed, the oil remains undissolved. It is claimed, however, that a large proportion of the citral, which is the chief flavouring component, is dissolved by a weakly alcoholic liquid, and in this way a so-called "terpeneless lemon extract" is prepared. Since the chief item of expense in lemon flavouring extract, is the alcohol, there is a temptation to manufacturers to employ so-called "terpeneless lemon oil." In Bulletin No. 89 are recorded 27 samples of extract of lemon, made with alcohol varying from 92·36 per cent to as low as 20·99 per cent strength. The oil of lemon found in solution varied from 15·5 per cent to a mere trace. In Bulletin 114, are recorded 110 samples of extract of

lemon, of which only 13 samples were made with alcohol of above 80 per cent, while 38 samples contained less than 30 per cent of alcohol. The oil of lemon was above 5 per cent in only 5 samples, and below 1 per cent in 78 samples.

When oil of lemon is subjected to repeated washing with a dilute alcohol, the undissolved residue, as it becomes poorer in citral, loses its commercial value for flavouring purposes, becoming more and more nearly a mixture of terpenes only. It is much to be desired that a workable method of detecting washed or exhausted oil of lemon should be devised. Up to the present time it is necessary to rely upon odour and taste. The German Pharmacopœia gives the following method of procedure :— "One drop of the oil triturated with sugar and agitated with 500 grammes of water, should impart to the latter the pure odour of lemon."

A. McGILL.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
1908.						
			DISTRICT OF NOVA SCOTIA—			
Feb. 13	Oil of Lemon....	33604	National Drug Co., Halifax, N.S.	3 oz..	45	G. Ecora, Italy.....
" 14	" ...	33605	Buckley Bros., Halifax, N.S..	3 " ..	60	" .....
" 26	" ...	33606	W. H. Stevens, Dartmouth, N.S.	3 " ..	75	National Drug Co., Halifax, N.S.
			DISTRICT OF PRINCE EDWARD ISLAND—			
Feb. 17	Oil of Lemon....	31222	Johnson & Johnson, Charlottetown.	3 oz..	60	Not known.....
" 18	" ...	31223	A. W. P. Gourlie, Summerside	3 " ..	60	Giacomo Ecora, Messina, Italy.
" 19	" ...	31224	Edgar Kier, Kensington.....	3 " ..	45	W. G. Polson & Co., Kingston, Ont.
			DISTRICT OF NEW BRUNSWICK—			
Feb. 12	Oil of Lemon....	29641	National Drug & Chem. Co., Ltd., Mill St., St. John, N.B.	3 oz..	75	Vendors .....
" 18	" ...	29642	E. Clinton Brown, cor. Union and Waterloo Sts., St. John, N.B.	3 " ..	90	G. E. Peirce, Messina, Italy.
" 21	" ...	29643	G. O. Spencer, Main St., Moncton, N.B.	3 " ..	75	The Can. Drug Co., Ltd., St. John, N.B.
			DISTRICT OF QUEBEC—			
Feb. 12	Oil of Lemon....	26392	E. O. Cloutier, Rivière du Loup en bas.	6 oz..	1 50	Polson Co., Kingston.....
" 18	Superior " ...	26403	Jos. Masson, 808 St. Valier, Quebec.	6 " ..	1 50	Polson, Kingston.....
" 18	" ...	26404	" " ..	6 " ..	90	" .....
			DISTRICT OF St. HYACINTHE—			
Feb. 18	Oil of Lemon....	27948	F. F. Ansell, Sherbrooke.....	2¼ " .	65	Not known.....
" 21	" ...	27949	Dr. John West, Magog. ...	2¼ " .	90	" .....
" 22	" ...	27950	Dr. J. B. Comeau, Farnham..	3 " .	75	Lyman, Sons & Co., Montreal

SESSIONAL PAPER No. 14

OIL OF LEMON.

Inspector's Report.	Results of Analysis.					Appearance.	Remarks and opinion of the Chief Analyst.
	Index of Refraction.	Polarization.	Specific gravity.	Solubility in 3 vols. Alcohol.	Distillat.		
	p. c.	p. c.	p. c.		p. c.		
R. J. WAUGH, INSPECTOR.							
....	5·79	+ 113	0·860	Soluble...	166°c	Light green. Limpid	
Sample taken from copper vessel, labelled Messina Oil.	60·3	+ 139	0·858	" ..	170·5°c	" "	
....	59·5	+144 6	0 858	" ..	171°c	" "	
T. MOORE, INSPECTOR.							
Could not remember from whom purchased; had been in stock for a long time.	62 8	+ 70 2	0·888	Soluble...	163°c	Very light green. Limpid.	Specific gravity is high; odour resembled turpentine.
... .	60 9	- 64·2	0·860	Insoluble.	168 5°c	Yellow. Limpid.	
....	62·2	+170·8	0 858	Soluble...	172·5°c	Light green.	
J. C. FERGUSON, INSPECTOR.							
Imported in original 1 lb. coppers from Spain. Bottled by vendors.	57·9	+167 0	0 859	Soluble...	170°c	Yellowish green.	
From original copper package	60·2	+166·0	0·857	" ..	170°c	"	
... .	56·9	+ 80·0	0·860	" ..	167°c	Pale green. Limpid.	
E. BELAND, INSPECTOR.							
.....	61·7	+158·8	0 864	Soluble...	172°c	Pale green. Limpid.	
....	60·6	+ 170	0·856	" ..	170 5°c	" "	
....	59 8	+ 65	0 863	Insoluble.	166°c	Yellow. Limpid.	
J. C. ROULEAU, INSPECTOR.							
The balance in a 4 oz. bottle labelled "Ol. Limonis."	60 2	+132 4	0·859	Soluble...	166°c	Light green. Limpid	
" ..	58·6	+ 106	0 871	" ..	166°c	" "	
Bottle labelled "Ol. Limonis."	59·4	+ 160	0 862	" ..	164 c	Yellow. Limpid.	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
1908.						
			DISTRICT OF MONTREAL—			
Feb. 14	Oil of Lemon....	32574	E. F. Emery, 607 Notre Dame West, Montreat.	3 oz..	60	National Drug & Chem. Co., Montreal.
" 24	" ...	32575	Quenneville & Guerin, 700 St. Catherine St., Montreal.	3 " ..	75	Not known.....
" 24	" ...	32576	R. McNichol, 542 St. Catherine East, Montreal.	3 " ..	75	" . .....
			DISTRICT OF OTTAWA—			
Feb. 22	Oil of Lemon...	34118	National Drug & Chemical Co., Ottawa.	3 oz..	75	Not known..... .....
" 21	"	34119	The Ottawa Drug Co., Ottawa.	3 " ..	60	Giacomo Ecora & Co., Messina, Sicily.
" 17	"	34120	J. A. Plaunt, Renfrew.....	3 " ..	1 20	The Drug Trading Co., Toronto, Ont.
			DISTRICT OF KINGSTON—			
Feb. 10	Oil of Lemon...	33064	W. W. Gibson, King street, Kingston.	3 oz..	30	H. Skinner & Co., Kingston.
" 10	"	33065	H. Wade, King st., Kingston.	3 " ..	60	N. C. Polson, Kingston. ....
" 10	"	33066	A. P. Chown, Princess street, Kingston.	3 " ..	60	Lyman & Son, Montreal ....
			DISTRICT OF TORONTO—			
Feb. 24	Oil of Lemon...	35030	John Mack, 1 James st., North, Hamilton.	3 oz..	75	Hamilton Coffee & Spice Co., Hamilton.
" 27	"	35031	H. Southcott, 99 St. Paul st., St. Catharines.	3 " ..	75	Lyman Bros. Co., Limited, Toronto.
" 28	"	35032	W. W. Ker, Cor. Main and Ferry sts., Niagara Falls South.	3 " ..	75	Giovanni Pasquale, Messina, Sicily.
			DISTRICT OF LONDON—			
Feb. 14	Oil of Lemon...	30473	John Roberts & Co., druggist, Seaforth.	3 oz..	60	London Drug Co., London, Ont.
" 21	"	30477	W. S. R. Holmes, druggist, Clinton.	3 " ..	60	Drug Trading Co., Toronto..
" 29	"	30489	John Livingston, druggist, Listowell.	3 " ..	60	Elliot & Co., Wholesale druggists, Toronto.

SESSIONAL PAPER No. 14

OIL OF LEMON.

Inspector's Report.	Results of Analysis.					Appearance.	Remarks and opinion of the Chief Analyst.
	Index of Refraction.	Polarization.	Specific gravity.	Solubility in 3 vols. Alcohol.	Distillat.		
	p. c.	p. c.	p. c.		p. c.		
J. J. COSTIGAN, INSPECTOR.							
....	61·7	+104·8	0·868	Insoluble.	167°c	Pale yellow. Limpid	
....	58·3	+127 2	0·858	Soluble..	168 5°c	" "	
....	61·7	+ 84 0	0·872	" ..	165°c	" "	
J. A. RICKEY, INSPECTOR.							
Taken from 1 lb. copper container labelled, Best quality Oil of Lemon, hand pressed, specially imported, Nat. Drug & Chem. Co., Ltd., Montreal.	59·1	+160·6	0·862	Soluble..	170·5°c.	Very light green. Limpid.	
Imported by Vendors...	61·4	+ 38·4	0·865	Insoluble.	164 c.	Yellow. Limpid	Polarization low.
Tin marked Oil of Lemon, super hand pressed, G. E. Peirce, Messina, Italy.	61·2	+150	0·867	Soluble.	168·5°c.	Colourless. Limpid.	
J. HOGAN, INSPECTOR.							
....	61·4	+165	0·860	Soluble..	169°c.	Light green. Turbid.	
.....	58·9	+165·4	0·858	" ..	171°c.	Light green. Limpid.	
....	60·5	+167 4	0 858	" ..	171°c.	Light green. Limpid.	
H. J. DAGER, INSPECTOR.							
Sample taken from behind dispensing counter.	57·4	+173·6	0·854	Soluble..	171°c.	Light green. Limpid.	
Sample taken from bottle in dispensing room.	59·1	+170·8	0·857	" ..	171°c.	Colourless. Limpid.	
Sample taken from original copper and labelled Strictly pure.	60·6	+169	0·857	" ..	171°c.	Yellow. Turbid ..	
T. KIDD, INSPECTOR.							
. . ..	60 9	+160·0	0·859	Soluble..	169°c.	Very light green. Limpid.	
....	60 0	+165 0	0·858	" ..	170·5°c.	" " ..	
....	60·5	+162 0	0 860	" ..	171°c.	" "	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
1908.						
			DISTRICT OF WINDSOR—			
Feb. 18	Oil of Lemon. .	34502	H. O. Fleming.....	3 oz..	75	National Drug Co... .. ....
" 20	"	34518	Anderson & Nolles, London..	3 " ..	60	Dodge & Olcott, New York..
Apl. 9	"	34527	T. H. Duncombe, St. Thomas.	3 " ..	30	Nat. Drug Co., London. ....
			DISTRICT OF MANITOBA—			
Feb. 19	Oil of Lemon...	25874	Elmwood Drug Store, Elmwood P.O., Winnipeg.	3 oz..	1 20	The Bole Drug Co., Winnipeg, Man.
" 24	"	25875	Barkers Drug Store, Glenboro, Man.	3 " ..	75	....
" 28	"	25876	Sanders Drug Store, Carman, Man.	3 " ..	75	Martin Bole Wynne Co., Winnipeg, Man.
			DISTRICT OF CALGARY—			
Feb. 21	Oil of Lemon...	28889	Bole Drug Co., Calgary.	3 oz..	60	Unknown ....
" 22	"	28890	Oliver Bros., Calgary.....	3 " ..	60	Evans & Sons, Ltd., Montreal.
" 22	"	28891	W. Maclean, Calgary.....	3 " ..	60	Nat. Drug Co., Montreal....
			DISTRICT OF VANCOUVER—			
Feb. 17	Oil of Lemon...	34224	H. McDowell & Co., Corner Granville and Hastings sts., Vancouver, B.C.	3 oz..	75	J. B. Horner, New York....
" 17	"	34225	Leslie Henderson, Cor. Granville and Georgia sts., Vancouver, B.C.	3 " ..	1 50	" " ....
" 17	"	34226	Le Patoural & McRae, Granville st., Vancouver, B.C.	3 " ..	1 50	Lyman Sons & Co., Montreal
			DISTRICT OF VICTORIA—			
Feb. 28	Oil of Lemon ..	34864	D. E. Campbell, Victoria, B.C	3 oz..	75	— Bush, London, Eng.....
" 28	" ..	34868	Wm. Jackson & Co., Victoria, B.C.	3 " ..	75	Burgoyne, Burbidges & Co., London, Eng.
" 28	"	34871	Geo. A. Fraser, Victoria, B.C.	3 " ..	75	" " ....

SESSIONAL PAPER No. 14

OIL OF LEMON.

Inspector's Report.	Results of Analysis.					Appearance.	Remarks, and opinion of the Chief Analyst.
	Index of Refraction.	Polarization.	Specific gravity.	Solubility in 3 vols. Alcohol.	Distillat		
	p. c.	p. c.	p. c.				
J. TALBOT, INSPECTOR.							
....	58·0	−164·2	0·858	Soluble.	169°c.	Colourless. Limpid.	
....	65·6	+154·2	0·878	" ..	170°c.	Very light green. Limpid.	
.....	61·2	−132·0	0·861	" ..	169°c.	Colourless. Limpid.	
A. C. LARIVIERE, INSPECTOR.							
.. ..	61·4	+162·0	0·862	Soluble.	170°c.	Colourless. Limpid.	
Bottle labelled The Pulford Leonard Drug Co., Winnipeg. Would not testify for purity.	61·7	+160·0	0·865	Insoluble.	166°c.	Light green. Limpid.	
....	59·5	+161·4	0·858	Soluble..	170·5°c.	" "	
R. W. FLETCHER, INSPECTOR.							
.....	59·8	+162·4	0·859	Soluble.	170·5 c.	Pale green. Turbid.	
....	58·3	+160·4	0·858	" ..	171°c.	" Limpid.	
....	60·5	+164·0	0·858	" ..	170·5°c.	" " ..	
J. F. POWER, INSPECTOR.							
Superior hand pressed; guaranteed.	61·5	+160·0	0·857	Soluble.	171·5°c.	Very light green. Limpid.	
....	60·2	+168	0·857	" ..	171°c.	" "	
....	49·8	+150·4	0·858	" ..	115°c.	Yellowish green....	
D. O. SULLIVAN, INSPECTOR.							
... .	65·1	+154·4	0·869	Soluble.	171°c.	Greenish. Limpid.	
....	60·2	+160·0	0·858	" ..	170·5°c.	" " ..	
.....	61·2	+161·4	0·858	" ..	171·5°c.	" "	

APPENDIX E.

BULLETIN No. 155—MAPLE SYRUP.

OTTAWA, May 29, 1908.

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR,—I beg to hand you a report upon 84 samples of Maple Syrup, collected in February last, as indicated in the subjoined table.

Instructions were specially given to accept no samples offered as Compounds, Mixtures, or as Maple Flavoured products. In spite of this warning, 6 samples have to be classified as Mixtures, viz.:—two purchased in Toronto district, two in London district, one in Quebec district, and one in Vancouver district. It is, however, to be remarked that the two samples obtained in Toronto were only acknowledged as mixture after the purchase was completed, and after our inspector had explained that they were purchased for analysis. Also that the sample bought in Vancouver district was sold as Maple Syrup, although the word "Flavour" was pencilled on the label; the same is true of the sample taken in Quebec.

The two samples purchased in London were plainly labelled "Maple Flavour" and should not have been accepted by Mr. Inspector Kidd.

MAPLE SYRUP.

District.	Genuine.	Doubtful.	Adulterated.	Mixture.	Total.
Nova Scotia	6	0	0	0	6
P. E. Island	0	0	0	0	0
New Brunswick	6	0	0	0	6
Quebec	1	0	4	1	6
St. Hyacinthe	5	1	0	0	6
Montreal	3	1	2	0	6
Ottawa	4	0	2	0	6
Kingston	4	1	1	0	6
Toronto	2	0	2	*2	6
London	2	0	2	2	6
Windsor	6	0	0	0	6
Manitoba	6	0	0	0	6
Calgary	6	0	0	0	6
Vancouver	5	0	0	1	6
Victoria	5	1	0	0	6
	61	4	13	6	84

* Toronto. Mixture not declared until purchase completed.

I beg to recommend that this report be published as Bulletin No. 155.

I have the honour to be, Sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.	Inspector's Report.	Results of Analysis. Percentage on Dry Substance. Lead sub-acetate precipitate	Total ash.	Malic acid value.	Remarks and Opinion of the Chief Analyst.
								p.c.	p.c.	p.c.	
1908.			DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.								
Feb. 14	Maple Syrup.	33612	W. C. Anderson, Halifax, N.S.	1 bot.	45	Maple Tree Producers' Association, Waterloo, Que.	Labelled Pride of Canada brand. Guaranteed pure.	3·42	....	....	Genuine.
" 14	"	33613	Rooney & Lovitt, Halifax, N.S.	1 "	30	Unknown.	No label on bottle.	3·87	....	....	"
" 14	"	33614	John Outhit, Halifax, N.S.	1 "	25	"	No label on bottle. Said to be made in Quebec.	4·12	....	....	"
" 17	"	33615	T. F. Courtney & Co., Halifax, N.S.	1 "	35	Mr. Lidell, Dunham, N.S.	No label on bottle.	3·41	....	....	"
" 18	"	33616	J. L. Archibald, Halifax, N.S.	1 tin.	50	Canada Maple Exchange, Montreal, P.Q.	Labelled Small's Maple Leaf brand. Pure Maple Syrup	3·23	....	....	"
" 26	"	33617	Colin McNabb & Co., Dartmouth, N.S.	1 bot.	35	Maple Tree Producers' Association, Waterloo, P.Q.	Labelled Pride of Canada brand.	4·00	....	....	"
			DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.								
Feb. 14	Maple Syrup.	29649	Vanwart Bros., cor. Charlotte and Duke Streets, St. John, N.B.	3 bots.	1.05	H. S. Colter, Upper Keswick Ridge, York County, N.B.	Labelled. Pure Maple Honey. It is Maple Syrup and so sold.	3·02	....	....	Genuine.

		"	.....	29650	Sussex Mercantile Co., Ltd., Main St., Sussex, N.B.	10 oz.	45	Sussex Mercantile Co., Ltd., Elgin, Albert Co., N.B.	Vendor said sample was bought from farmers' old stock. May have fermented. Would not guarantee Syrup	4 58	...	....	"
"	21	"	.....	29651	Rod. McLean, Main St., N.B.	3 bots.	75	C. Hallett & Co., Bear Island, York Co., N.B.	Labelled PureRock Maple Honey. Mfd. by C. Hallett & Co., Bear Island, York Co., N.B.	2 86	.....	...	"
"	25	"	.....	29652	James Mailer, Newcastle, N.B.	3 "	40	Goddard Bros., Elgin, Albert Co., N.B.	From Imperial one gallon can. In Store 9 months.	4 12	....	..	"
Mar.	7	"	...	29653	W. A. Estabrook, Fredericton, N.B.	3 "	1 05	D. A. Niles, King's Clear, N.B.	Labelled Pure Maple Honey. Mfd. by D. A. Niles, King's Clear, N.B.	4 95	...	....	"
"	7	"	....	29654	F. W. Samson, Fredericton, N.B.	3 "	90	C. F. Hagerman & Sons, Bear Island, N.B.	Labelled Pure Maple Honey. Mfd. by C. F. Hagerman & Son, Bear Island, N.B.	2 89	.	..	"

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

Feb.	12	Maple Syrup.....	26397	Napoleon Pelletier, Fraserville, Quebec.	3 bots.	75	Quebec Preserving.....	...	Sold for pure.....	0 50	0 40	0 10	Adulterated.
"	13	"	26398	P. E. Coté, St. Paschal ...	3 "	90	" Co.....	...	.....	0 29	0 20	0 10	"
"	14	"	26399	Union Agricole, St. Anne Pocatiere.	3 "	66	Unknown	...	.....	0 95	0 29	0 14	"
"	18	"	26405	A. Rinfret, 414 St. Joseph, Quebec.	3 "	75	A. Rinfret, Quebec..	...	.....	0 70	0 17	0 14	"
"	18	"	26406	Hamel & Bedard, 728 St. Valier, Quebec.	3 "	1 05	Hamel & Bedard, Quebec.....	...	.....	3 54	.....	....	Genuine.
"	19	"	26407	Jos. Falardeau, 268 Rue du Roie.	3 "	60	Jos. Falardeau, Quebec.. . .	...	Label has the word 'flavoured' written upon it.	0 83	0 15	0 11	Sold as artificial.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.	Inspector's Report.	Results of Analysis. Percentage on Dry Substance. Lead subacetate precipitate.	Total ash.	Malic acid value.	Remarks and Opinion of the Chief Analyst.
1908.								p.c.	p.c.	p.c.	
DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.											
Feb. 13	Maple Syrup	27956	J. O. Montplaiser, Drummondville.	3 bots.	60	A. Jeannette, St. Germain de Grantham.		4·15			Genuine.
" 14	"	27957	J. H. A. Talbot, Arthabaskaville.	3 "	75	Ed. Talbot, Stanfold	From a 2 gall. vessel.	3·72			"
" 18	"	27958	Bray Bros., Sherbrooke	1 gal.	1 30	F. H. Sevigny & Son, Birchton.	Vessel marked F. H. Sevigny & Son, Birchton.	4·15			"
" 19	"	27959	Woodman & McKee, Coaticook.	½ "	50	Not known	Marked ½ gall.	4·06			"
" 21	"	27960	Gosselin & Paradis, Magog	10 tin.	80	S. G. Patch, Wellington, Brome Co.	Marked 10 lb.	4·09			"
" 22	"	27961	Horni Benjamin, St. Cesaire.	3 bot.	60	His brother.		2·00	0·37	0·40	Doubtful.
DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.											
Feb. 17	Maple Syrup	32577	Beauvais, Lalonde & Co., 482 St. James St. Montreal	2 bots.	50	Vendor	Bottled by Vendor. Labeled Pure Maple Syrup.	2·77			Genuine.
" 20	"	32578	Canada Maple Exchange Ltd. 618 Beaudry St., Montreal.	3 "	75	"	Bottled by Vendor. Labeled Small's Selected Maple Syrup.	2·03			Doubtful.

"	21	"	.....	32579	J. N. Prieur, 907 St. Lawrence B., Montreal.	3	"	75	Unknown.....	Bottled by Vendor and sold as pure. Bottles not labeled.	0·18	0·13	0·26	Adulterated.
"	21	"	...	32580	T. Lanthier, 221 Colonial Ave., Montreal.	2	"	50	F. Lanthier, St. Genevieve, P.Q.	Bottled by Vendor. Sold as pure.	4·86	.....	...	Genuine.
"	25	"	....	32581	J. S. Gauthier, St. Anne de Bellevue, P.Q.	3	"	75	Nap. Challette, Rigaud, P.Q.	.....	3·72	.....	....	"
"	26	"	..	32582	J. L. Desaulniers, 492 St. Lawrence B., Montreal.	3	"	75	Hislop & Hunter, Montreal.	.....	0 18	0·07	0·14	Adulterated.

DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.

Feb.	12	Maple Syrup.....	34126	R. E. Powell, Wellington St., Ottawa.	1 Bot.	40	W. F. Goddard, agents . . .	Labelled Pride of Canada Maple Syrup. Is a genuine maple sap syrup. Put up by the Maple Tree Producers Assoc. Montreal.	2 83	.....	...	Genuine.
"	12	"	34127	C. B. McLean, Ottawa.....	24 oz..	25	J. Brown, Philipsville..	Vendor said sample was taken from a barrel. No marks. Sold as pure maple syrup to Vendor.	4 43	...	...	"
"	13	"	34128	Mrs. Brankin, Ottawa.	24 "	20	From a Farmer	Vendor said sample was bought from a farmer on the market.	0·14	0 06	0 32	Adulterated.
"	14	"	34129	S. W. Lee, Ottawa. ..	1 bot.	60	H. N. Bate & Son, Ottawa .	Labeled Monument brand Maple Syrup. This brand guaranteed pure. Quebec Maple Co., Montreal.	1 32	0 27	0·27	"
"	19	"	34130	Alex. Henery, Kemptville .	1 gall.	100	J. P. Smith, Mountain Station.	Vendor said Mr. J. P. Smith the manufacturer guaranteed sample pure maple syrup.	3·66	...	....	Genuine.
"	20	"	34131	John Mayberry, Prescott.	3 bots	90	From a farmer.	Bought in bulk from Farmer and bottled by Vend. or guaranteed pure maple syrup	2·98	...	...	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.	Inspector's Report.	Results of Analysis. Percentage on Dry Substance. Lead subacetate precipitate	Total ash	Malic acid value.	Remarks and Opinion of the Chief Analyst.
								p. c.	p. c.		
DISTRICT OF KINGSTON—J. HOGAN, INSPECTOR.											
Feb. 11	Maple Syrup.....	33072	W. Davies, Princess St., Kingston.	1 qt.	30	Maple Tree Assoc., Waterloo, Quebec.	Pride of Canada...	3·69	.....	....	Genuine.
" 11	" . .	33073	W. Van Luven, Princess St., Kingston.	3 tins.	90	Small, Montreal.....	....	2·15	.....	....	Doubtful.
" 11	"	33074	J. S. Henderson, Brock St., Kingston.	3 bots.	90	Maple Tree Assoc., Waterloo, Quebec.	Pride of Canada ..	2·80	.....	....	Genuine.
" 12	" ...	33075	W. A. Stephens, Port Hope.	1 qt.	30	J. Solen, Toronto..	. .....	0·13	0·13	0·28	Adulterated.
" 13	"	33076	White & Gillespie, Peterboro	3 bots.	60	Thompson, Arduck.....	....	3·72	...	....	Genuine.
" 13	"	33077	P. Connal & Son, Peterboro .	1 qt.	50	....	... .	3·40	....	....	"
DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.											
Feb. 24	Maple Syrup.....	35038	John McInnis, Hamilton....	1 qt.	25	Lucas Steel & Bristol, Hamilton.	Sample from store sealed. No label. Vendor said it was pure so far as he knew.	0·30	0·13	0·25	Adulterated.
" 24	"	35039	C. H. & E. R. Almas, Hamilton.	1 pt.	18	Eastern Townships Maple Syrup and Sugar Exchange, Quebec.	Sample from 2 gall. can. Vendor sold it as labelled. Guaranteed pure	3·44	.....	....	Genuine.

"	27		....	35040	W. T. Richardson, St. Catharines.	1 "	15	Eastern Townships, Sutton, Quebec.	Sample from 5 gall. can in store.	1·10	0·15	0·32	Adulterated.
"	28	"	....	35041	F. B. Misener, Niagara Falls South.	1 "	15	Geo. Foster, Brantford . . .	Sample from 5 gall. can. Sold as pure. After I paid for syrup Vendor said it was a mixture.	0·43	.....	....	Sold as mixture.
"	29	"	....	35042	J.C. Groom, Erie Av., Niagara Falls.	1 "	25	Balfour & Smye, Hamilton.	Sold as pure. After had paid for sample and said for what purpose the purchase was made was then told it was a mixture.	0·43	.....	.....	"
Mar.	3	"		35043	G. O. Roche, Toronto.	1 qt.	35	Maple Tree Producers Assoc. Ltd., Waterloo, Que.	Labelled Pride of Canada guaranteed absolutely pure and made from genuine sap.	4·83	.....	.....	Genuine.

DISTRICT OF LONDON T. KIDD, INSPECTOR.

Feb.	11	Maple Syrup.....		30466	Charles Nairn, Goderich.....	1½ qt.	45	Maple Tree Producers Assoc., Waterloo, Ont.	.. ..	2·40	.....	.....	Genuine.
"	13	"	.....	30472	A. Beattie & Co., Stratford..	1 qt.	25	Arthur P. Tuppot, Montreal.	Sold as maple flavour syrup.	0·98	.....	....	Sold as mixture.
"	25	"	.....	30481	Pickard & Fleming, St. Mary's.	1 qt.	25	McCormick Mfg. Co., London, Ont.	Branded Pure Maple Syrup.	4·18	.. ..	.....	Genuine.
"	28	"	.....	30485	M. R. Folsom, Mitchell.....	1 qt.	25	Lind, Kerrigan & Co., London, Ont.	Invoiced Maple Syrup.	0·21	0·26	0·24	Adulterated.
"	28	"	.....	30487	A. G. Ault, Seaforth.....	1 qt.	25	Geo. Foster & Sons, Brantford.	.. ..	0·53	0·23	0·14	"

DISTRICT OF WINDSOR—J. TALBOT, INSPECTOR.

Feb.	18	Maple Syrup..		34505	R. M. Drulard.....	3 qts.	1.50	Maple Tree Producers Assoc., Waterloo, Que.	....	2·43	...	...	Genuine.
Mar.	11	"	.....	34520	T. A. Rowat, London.... ..	3 bots.	90	A. H. Ingalls, Abercorn, Que.	.. ..	3·29	.....	...	"
April	8	"	.. ..	34523	C. R. Ead, St. Thomas.....	3 " .	90	Maple Tree Producers Assoc., Waterloo, Que.	....	3·08	.....	....	"
"	9	"	.....	34525	Butler Bros., St. Thomas....	3 "	45	Bought on market from a farmer.	.. ..	4·15	.....	....	"
"	9	"	.....	34526	Stedman & Duncan, St. Thomas.	3 " .	50	N. Hathaway, Iona, Ont ...	Bought on market from a farmer.	2·95	.. ..	...	"
"	10	"	.....	34528	Norman McLeod, London East.	3 " .	60	.. ..	.. ..	3·28	.....	...	"

14—5½

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.	Inspector's Report.	Results of Analysis. Percentage on Dry Substance. Lead subacetate precipitate.	Total ash.	Malic acid value.	Remarks and Opinion of the Chief Analyst.
								p. c.	p. c.	p. c.	
DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.											
Feb. 18	Maple Syrup	25894	Foley, Lock Larson, Winnipeg, Man.	1½ qts. 1 bot.	30	Maple Tree Producers Assoc., Ltd., Waterloo, Que.	Brand, Pride of Canada.	3·69	.....	....	Genuine.
" 18	"	25895	J. A. McKerchar, Winnipeg, Man.	1½ qts. in can.	45	" "	" "	4·36	...	...	"
" 18	"	25896	" "	1½ qts	40	R. McPhail, Glengarry, Ont.	....	4·27	.....	....	"
" 18	"	25897	Codville & Co., Winnipeg, Man.	1 gall.	1 40	Not given	.....	6·09	...	....	"
" 27	"	25898	Hardy & Buchanan, Winnipeg, Man.	½ "	85	Maple Tree Producers Assoc., Ltd., Waterloo, Que.	Brand, Pride of Canada.	3·81	.....	...	"
" 27	"	25899	" "	1 qt.	50	" "	" "	4·15	.....	...	"
DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.											
Feb. 28	Maple Syrup	28901	L. B. Cochran, Medicine Hat	1 qt.	1.00	Maple Tree Producers' Association, Waterloo, Que.	.....	4·54	.....	....	Genuine.
" 29	"	28902	Hudson Bay Co., Lethbridge	2 lbs.	50	" "	.....	3·69	...	..	"
Mar. 2	"	28903	Cook & McKerricher, Pincher Creek.	1 qt.	60	" "	....	3·81	....	..	"
" 5	"	28905	Hudson Bay Co., Edmonton.	1 "	50	" "	.....	4·40	.....	...	"

"	5	"	.....	28906	The Acme Co., Edmonton..	1 " ..	50	"	"	....	4·15	.	....	"
"	5	"	.....	28919	J. H. Morris & Co., Edmonton	1 " ..	50	"	"	....	4·05	...	....	"

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

Feb.	20	Maple Syrup.	34244	C. E. Turner, Vancouver, B.C.	1 qt..	50	Maple Tree Producers' Assoc., Ltd.. Waterloo, Que.	Genuine; guaranteed to comply with Adulteration Act.	4·06	.....	.....	Genuine.
"	20	"	34245	F. Wright, Vancouver, B.C..	1½ "	50	Blair, Franklin Centre, Que.	....	2·61	....	....	"
"	20	"	34246	Howell & Weir, Vancouver, B. C.	½ gall.	1.00	Canadian Maple Exchange..	Pure, selected, guaranteed.	3·78	.....	....	"
"	20	"	34247	Kyle & Sons, Vancouver, B.C.	½ gall.	1.00	Eastern Townships Maple Syrup and Sugar Exchange, Sutton, Quebec.	Satisfaction guaranteed.	3·53	.. .	....	"
"	20	"	34248	McDowell & Kirrins, Vancouver, B.C.	½ gall.	1.10	Not known.....	....	3·26	...	....	"
"	20	"	34249	H. Duff, Vancouver, B.C ..	1 qt...	75	Ramsay Bros. & Co., Ltd....	Sold as Maple Syrup. See label. Flavour pencilled over.	0·86	.....	..	Sold as maple flavour.

DISTRICT OF VICTORIA—D. O. SULLIVAN, INSPECTOR

Feb.	20	Maple Syrup. . . .	34845	Saunders Grocery Co., Ltd., Victoria, B. C.	1½ lbs.	50	Canada Maple Exchange, Montreal, P.Q.	. . ..	2·49	0·41	0·47	Doubtful.
"	20	" . .	34846	Saunders Grocery Co., Ltd., Victoria, B.C.	1½ "	50	The Eastern Townships Maple Syrup and Sugar Exchange, Sutton, Que.	. . . . .	3·02	....	...	Genuine.
"	21	"	34847	West End Grocery Co., Ltd., Victoria, B.C.	1½ "	60	Maple Tree Producers' Association, Waterloo, Que.	....	4·09	....	....	"
"	21	"	34848	Fred Carne, Victoria, B.C...	1½ "	60	" "	. . ..	3·44	. .	....	"
"	22	"	34858	Dixi H. Ross & Co., Ltd., Victoria, B.C.	1½ "	60	W. R. Horner, Granby, Que.	....	3·42	.....	....	"
"	22	"	34859	Windsor Grocery Co., Victoria, B.C.	1½ "	60	Maple Tree Producers' Association, Waterloo, Que.	....	3·29	.....	....	"

APPENDIX F.

BULLETIN No. 156.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

Ottawa, June 8, 1908.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue,

Sir,—I beg to hand you a report of work done upon so-called *Feeding Stuffs* for Cattle. The samples (142 in number) in question were collected throughout the inspectoral districts of Canada, in December, 1907.

The immediate cause of this collection was a request made by Mr. M. Cumming, Secretary for Agriculture, Nova Scotia, dated August 16, 1907. In your letter of transmission to me, you ask if I am in a position to suggest a definition for Feeding Stuffs. I replied as follows:—

Referring to L. 44789, F. 94334, as regards the question of Cattle Foods, I beg to inclose for your information a memorandum on the subject, and would say:—

(1) That I do not think the defining of any standard for Cattle Food to be practicable.

(2) The manufacturer must be required to guarantee a value for each brand of food; and we must make him live up to such guarantee.

(3) The case seems to me quite analogous to that of Fertilizers; and I think the best way to meet the requirements will be to enact a Concentrated Food Stuffs Act, on similar lines to those which I have indicated in the case of Fertilizers.

Yours truly,

A. McGILL,
Chief Analyst.

CONCENTRATED COMMERCIAL FEEDING STUFFS.

Cattle Foods, of the kind included above, consisted until quite recent years, of wheat bran, shorts, middlings, linseed meal, oil-cake, &c., or mixtures of these: substances which may be characterised as the normal by-products of milling, oil pressing, and similar industries.

The by-products named were obtained by well defined and long established methods of milling, and possessed a fairly constant character. When a farmer bought bran, or shorts or oil-cake, he was fairly well assured of getting an article whose value he could depend upon; and when a manufactured food was made from such materials it, too, possessed a fairly definite value.

With recent improvements in milling, and specially since the extensive manufacture of Cereal Breakfast Foods, there have resulted immense quantities of by-products unknown before, and varying extremely in their value as nutrients. The expansion of the cotton-seed industry, of beet sugar and molasses, of corn-oil manufacture, glucose waste, &c., has brought into existence other classes of by-products, having more or less value as cattle food. These articles are in many cases, not available separately, on account of impalatability or for other reasons. Hence has resulted a great increase in the amount of manufactured or so called "concentrated" stock food on the market.

It is apparent that this condition of things offers a great inducement to unscrupulous manufacturers to use valueless material in compounding their goods. The state of things is, indeed, quite analogous to that obtaining in the fertilizer industry; and the farmer is as much at the mercy of the Feed manufacturer as he is at the mercy of the "Fertilizer" manufacturer.

Connecticut, in 1895, was the first of the United States to recognize the necessity for legislation in regulating cattle foods, of the kind referred to. Since that date, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Michigan and Wisconsin have enacted feeding stuff laws. The last named State only passed its feeding stuff law in 1901, and in amended form in 1905. I learn that several other States contemplate the immediate enactment of similar laws, as they find that they are made the dumping ground for goods which are refused sale in the States already safeguarded by having legal control of such articles.

The fundamental principles of the legislation above referred to, so far as I have acquaintance with it, are these:—

1. Requiring a license to sell.
2. Payment of a license fee (usually $25 annually) to cover the cost of inspection.
3. The manufacturer must guarantee a minimum percentage of protein and fat in the article he offers for sale.
4. Continuous inspection of the article as found on the market.
5. Publication of analytical results.
6. Penalty for failing to reach the guaranteed values.

In his letter above referred to, Mr. Cumming says:—

"In the course of my travelling through Nova Scotia, and from the correspondence "we constantly receive, I gather that there is a rather wide-spread suspicion or distrust "among our farmers as to the genuineness of many of our concentrated feeding stuffs

"for sale in this province. These, as you may know, are largely imported, and bring a "fairly high price."

Bulletin No. 116 of this Laboratory contains the results of analysis of 127 samples of feeds. This examination was made at the suggestion of the Department of Agriculture and the Ontario Agricultural College, and indicates that a suspicion concerning the value of these feeds is not confined to the province of Nova Scotia.

As already stated in the memorandum above quoted, a wide-spread demand for inspection of feeding stuffs has caused the enactment of laws in this regard in many of the States of the American Union.

These laws require that concentrated feeding stuffs offered for sale shall be registered, and their value in protein and fat, distinctly stated upon the package. Most of the laws in question, exempt from license the following classes of feeds :—

1. Hay and straw.
2. Whole seeds or unmixed meals made directly from the entire grains of wheat, rye, barley, oats, Indian corn, buckwheat and broom corn.
3. Wheat bran and wheat middlings not mixed with other substances.
4. Wheat bran and wheat middlings mixed together, but not mixed with other substances.
5. Pure grains ground together, unmixed with other substances.

The Kentucky law (1906) exempts nothing from legal registration and inspection, except hay and straw.

This seems to me the more rational mode of proceeding. Hay and straw are the normal feeds for cattle. They are capable of being accurately valued by direct examination on the part of purchasers. The term "concentrated" applied to a feed, means that it contains nutritive material in a more concentrated form than hay and straw ; and the necessity for inspection lies in the fact that the actual value of these feeds is not capable of being determined by ordinary observation on the part of a purchaser.

Even such well known feeds as bran, middlings, shorts, chop-stuff (moulée), &c., differ very greatly in value among themselves, as may be seen from the tabulated results of analysis, in this report.

A practicable way of meeting the case would seem to be the adoption of certain minimum standards for protein, fat and carbohydrates in bran, middlings and shorts, and such other recognized feeds as possess distinctive names. Perhaps it might be necessary to distinguish wheat bran from oat bran, and so for other grains ; but this is a matter for consideration. In all cases of mixed feeds, the manufacturer should be required to state either or both the composition of the feed, and the value in percentage of protein, fat and carbohydrates, the last term being understood to mean the difference between the sum of moisture, ash, protein, fat and fibre, and the total weight of the material. In this way it will include starch, sugar and pentosans, which last usually constitute about 10 to 15 per cent of the whole, and have probably a less nutritive value than starch and sugar ; although this value is not as yet well known.

If my view of this matter is correct, it will be necessary in the first instance, to define the terms bran, shorts, middlings, chop-feeds, oil-cake, &c., and to insist upon all other feeds being identified by registration numbers, and offered for sale under a guaranteed value in protein, fat and carbohydrates. Of course it would remain open to any miller who preferred doing so, to register a special grade of bran, shorts or chop-feed, and to guarantee for it a minimum value in nutritive matter ; but the terms bran, shorts, &c., should themselves be so defined as to fix a minimum value for material sold under these names.

Bran (see Table II). This may be a product of the milling of oats, barley, rye or wheat, but usually the last named grain. It differs from straw in that the inner surface of the bran flakes is made up of the nutritious layer of the grain, which is rich in protein and fat.

The following data may be cited for bran :—

—	Samples.	Protein.	Fat.	Fibre.
		p.c.	p.c.	p.c.
Winter Wheat bran—Connecticut, 1905	9	15·90	4·56	8·77
Spring " "	16	14·06	4·70	10·54
Legal Standard, North Carolina, 1907		14·50	4·00	9·50
" Kentucky, 1907		15·00	4·00	8·00
Inland Revenue Bulletin No. 116, 1906	29	13·47	2·47	11·11
" " No. 156, 1908	27	14·74	3·48	8·69

The above figures indicate Canadian bran as slightly lower than legal bran in such of the United States as have fixed a standard for the article. On the other hand, it is to be remembered that the samples of bran analysed in this laboratory have been sold simply as bran, not necessarily derived from wheat.

Middlings or Shorts (see Tables III and IV). I am unable to distinguish between these terms, which appear to be synonymous. Middlings would seem to be the coarser material, sifted out from the products of a second treatment of the wheat by crushing the coarsely ground material that is sifted out from the bran after the first grinding. If this be correct, middlings should contain less fibre and more protein and carbohydrates than bran.

The following data are available regarding middlings or shorts :—

—	Samples.	Protein.	Fat.	Fibre.
		p.c.	p.c.	p.c.
Middlings—Winter Wheat, Connecticut, 1905	4	16·44	4·52	5·60
" Spring " "	16	16·78	4·84	6·03
" Legal Standard, North Carolina, 1907		15·00	4·00	6·00
" " Kentucky, 1906		15·75	4·25	6·50
Shorts—Inland Revenue Bulletin No. 116, 1906	9	16·12	3·87	8·34
Middlings— " " "	2	13·59	2·72	8·33
Shorts— " " No. 156, 1908	29	16·44	4·23	7·33
Middlings— " " "	7	16·09	3·05	9·50

Chop, Chop-feed, Moulée, Provender, &c.—Feed sold under the above names is usually so finely ground that the components are not distinguishable by the eye, and for this reason such feed lends itself to very ready adulteration with chaff, corn-cobs, and other matter of little value.

Typically, I understand that chop-feed is intended to be whole grain, more or less finely ground. The grain used may be oats, wheat, &c., or mixtures of these. It is in its nature of so various character that it is manifestly unfair to the purchaser to offer it without a guarantee of its feeding value. For this reason it would probably be impracticable to attempt to fix a legal limit of value for chop-feeds, as such.

Some idea of the great variations existing in chop-feed may be obtained from examining the list of 28 samples, purchased under this name, and reported herein. (See Table V.) It will be seen that the protein value varies from 20·50 per cent to 6·13 per cent; the fat from 4·96 to 1·20 per cent and the carbohydrates from 75·27 to 55·98 per cent.

Oil cake Meal; Linseed-oil Meal; Cottonseed Meal.—These feeds consist of the ground residues left after the oil has been extracted from linseed or cottonseed. Their feeding value depends upon the high percentage of proteids contained by them, and also upon the residual oil left after treatment in the press.

Since the introduction of the use of a solvent for the extraction of the oil (new process), the residual oil is much reduced in quantity, and many of the United States require that the oil-cake meal shall be defined as "Old Process" or "New Process," when offered for sale.

The following values for these meals are taken from Bulletin 108, Bureau of Chemistry, Washington :—

COTTON SEED MEALS.

Source of Samples.	No. of Samples.	Protein.			Fat.		
		Maximum	Minimum.	Average.	Maximum	Minimum.	Average.
		p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Pennsylvania, 1900–1901..	8	46·09	42·50	44·40	12·25	8·77	10·10
New England, 1898–1899..	205	52·60	40·30	45·40	17·00	6·50	11·20
New York, 1898–1899	11	50·69	41·68	45·64	13·16	7·56	10·82

LINSEED MEALS.

"Old Process" Meal.							
Pennsylvania, 1900–01	24	37·81	29·69	34·10	8·88	3·54	6·04
New England, 1898–99..	25	38·90	31·80	35·70	9·60	2·70	7·20
New York, 1898–99	14	38·19	28·69	35·74	8·86	5·72	7·19
"New Process" Meal.							
Pennsylvania, 1900–01..	3	34·63	34·00	34·25	2·92	2·19	2·63
New England, 1898–99.	31	42·20	39·60	38·20	3·50	1·80	2·40
New York, 1898–99.	5	37·56	35·19	36·14	4·79	2·91	3·57

In Table VI. of this report, are given the results of analysis of 27 samples of linseed meal or oil-cake meal. The contents vary as follows :—

Proteids	— Maximum	39·19
	Minimum	19·69
	Average	31·23
Fat	— Maximum	24·14
	Minimum	1·65
	Average	6·89
Carbohydrates	Maximum	54·68
	Minimum	26·99
	Average	42·17

It will be noted that while there is little difference between the protein content of old and new process meals, the oil content is much lower in new process meal. On account of this fact, and the considerable variation between maximum and minimum values, it is evident that the only just way of putting such feeds on the market is that of guaranty.

I recognize the importance of stating the food value of these articles in as simple terms as possible. For this reason it would be unwise to introduce discrimination between the varying nutritive values of starch, sugar, pentosans, and other substances which I have grouped under the general term carbo-hydrates. That such differences of value exist there can be no doubt ; but not only are they comparatively slight, but they are imperfectly known.

Fats are usually taken as having 2¼ times the feeding value of starch. This valuation is based on their heat producing (calorific) equivalent ; and is probably not far from the truth, under normal disgestive conditions.

If we could place a relative feeding value upon proteids it would then be possible to obtain a single expression for the relative values of feeds. The advantage of having such a simple expression of value is self-evident. Nor is the attempt to use such an expression of value now made for the first time. Both in Germany and in the United States (See Bull. 106, Wisconsin Agr. Exp. Station) efforts have been made to devise a way of stating in a single term, the values of stock-foods. Proteids, fats and starches have been relatively valued in the ratio 3 : 2 : 1 ; and many refinements have been attempted, these being based upon consideration of digestibility.

I am inclined to think that the above ratio gives too low a value to proteids ; and am further convinced that, in the present state of our knowledge regarding the digestibility and consequent nutritive value of the various proteids and carbohydrates, it is unwise and even misleading to attempt to give great refinement to any simple expression of relative value. Certainly the attempt to make such a value coincide with the trade values of these articles, is to ignore the varying conditions of production and demand. It is easily conceivable that on one farm a given feed may be of greater importance than on another, in the same way that a fertilizer of given composition may have a high value for a particular soil, and a lower value for a soil of a different character.

For the purposes of this report I have used the following relative values :—

	Per unit.
Carbohydrates (Starch, Sugar, Pentosans, &c.)	1
Fats	2
Proteids	4

So far as I am able to get information on the subject, these numbers indicate fairly well the value of the substances named. The numbers must be considered as subject to revision, and to change, on sufficient grounds.

In a general way they may be considered as furnishing a helpful guidance in comparing individual samples with each other. The following statement gives, at a glance, the extreme and mean values of these feeds, in terms of the relative value :—

	Samples.	Relative value.		
		Maximum	Maximum	Mean.
		p.c.	p.c.	p.c.
Bran—Table II	27	132	113	126
Shorts—Table III	29	144	116	134
Middlings—Table IV	7	135	123	129
Chop Feeds—Table V	28	147	88	118
Oil Meal—Table VI	27	203	159	185

That the above values approximate the trade values of the feeds, in a general way, appears from the following trade prices, (retail), which have been obtained from Ottawa dealers.

Bran	$1.30 per cwt.
Shorts and Middlings	1.25 to $1.35 per cwt.
Chop-feeds (Provender)	1.60 per cwt.
Linseed Meal	4.00 per cwt.

Chop-feeds, vary so much in value, that they especially call for a guaranty. The proprietary foods, sold under distinctive brand names, should evidently carry a guarantee of value.

In Table VII. I have arranged 24 samples, of miscellaneous character, such as did not permit of their being classified with those included in the preceding tables. Several of these are not to be regarded as foods, in the usual sense, but rather as cattle medicines. Others are condimentary foods. Most of them are proprietary. The examination and discussion of this class of articles will be treated at some future time.

I beg to recommend the publication of this report as Bulletin No. 156.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

TABLE I.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

Date of collection.	Nature of Sample.	No. of Sample.	Name and address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Moisture.	Ash.	Protein.	Fat.	Fibre.	Carbohydrates, &c., (Difference.)
1907.								p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.													
Dec. 5	Cattle Feed.....	27393	J. S. Cashew.....	2 lbs.	5	Jas. Goldie, Guelph, Ont.	Sold as bran.....	9·04	5·78	15·75	3·26	8·80	57·37
" 6	"	27395	DeWolf & Lamont, Kentville, N.S	2 "	5	Campbell Co., St. Thomas, Ont.	"	8·75	6·36	14·00	3·45	8·92	58·52
" 6	"	27396	" " ..	2 "	5	" " ..	Sold as middlings.....	5·96	4·22	13·81	3·64	5·90	66·47
" 6	"	27397	W. A. Smith, Kentville, N.S.	2 "	5	The Tillson Co., Tillsonburg, Ont.	Sold as wheat-bran.....	7·95	6·30	14.06	3·49	8·40	59·80
" 6	"	27398	S. L. Cross, Kentville, N.S.	2 "	5	Western Canada Mills Co., S. Mary's, Ont.	Sample taken from bag labelled "feed flour."	8·85	2·22	15.50	3·99	1·68	67·50
" 7	"	27399	R. E. Harris, Wolfville, N.S.	2 "	5	The Ogilvie Flour Mills Co. Montreal.	Labelled "Moulee" on bag from which sample was taken.	8·50	4·36	15·75	3·42	5·64	62·33
" 10	"	27400	E. D. Moore, Liverpool, N.S.	2 "	10	Vendor.....	Sold as oats and corn; half and half.	9·16	1·76	10·77	3·39	5·85	69·07
" 16	"	33485	E. W. Walker, Dartmouth, N.S.	2 "	5	Brant Milling Co., Brantford, Ont.	Sold as shorts.....	9·12	4·68	15·69	3·53	5·28	51·79
" 16	"	33486	Nova Scotia Milling Co. Dartmouth, N.S.	2 "	5	Ogilvie Milling Co., Montreal.	Sold as middlings.....	8·55	6·08	17·50	2·36	14·40	51·11
" 16	"	33487	Colin McNabb, Dartmouth, N.S.	2 "	5	Unknown.....	"	8·00	6·06	17·50	2·36	14·40	61·68

DISTRICT OF PRINCE EDWARD ISLAND—T. MOORE, INSPECTOR.

Nov.	29	Oil Meal	31175	Auld Brothers, Charlottetown.	2 lbs.		J. J. Livingston, Ont		7·75	4·92	35·70	1·73	7·28	42·62
"	29	Wheat Middlings	31176	F. L. McNutt, Charlottetown.	2 "	4	Ogilvie Milling Co		6·05	4 50	16·81	2·87	9·68	69·09
"	30	Feed Flour	31177	R. E. Mutch, Charlottetown.	2 "		G. Carters & Sons, St. Mary's Ont.		7·60	2·20	14·50	1·60	5·12	68·98
"	30	Banner Feed	31178	P. E. I. Hay & Produce Co., Charlottetown.	2 "		American Cereal Co.		7·45	2·26	7·69	2·31	9·72	70·57
"	30	Molac	31179	Auld Bros., Charlottetown.	2 "		Quaker Oats Co., Peterboro, Ont.		5·25	5·28	15·38	5·25	7·48	61·38
Dec.	3	Bran	31180	Coffin & Co., Charlottetown.	2 "	5	Myers Milling & Elevator Co., Lestor, Ont.		6·50	5·70	12·25	1·70	9·28	64·57
"	4	Feed Corn	31181	R. T. Holman, Ltd., Summerside.	2 "	5	Geo. Robertson, Summerside.		8·10	1 82	10·94	3·42	5·08	70·64
"	4	Molac	31182	" "	2 "	4	Unknown		7·20	6·20	9·44	3·36	11 28	62·52
"	5	Molasseuit	31183	R. Tuplin & Co, Kensington.	2 "	8	E. P. Crow, Stewiacke, N.S.		10·30	20·40	4·90	2·50	6·56	55·34
"	5	Oil Cake	31184	T. Kennedy Kensington.	2 "	6	Unknown		7·60	4·96	36·56	2·04	11·64	37·20

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.

Dec.	3	Bran	29594	Wm. Dunlop & Sons, 12 Sydney St., St. John, N.B.	3 lbs.	25	Lake of the Woods Milling Co., Keewatin, Canada.	Taken from 100 lb. bag in store.	9·05	6·50	14·44	1·66	14·24	44 11
"	4	Cracked Corn	29595	Maritime Corn Meal Mill, Hanover St., St. John, N.B.	3 "	10	Maritime Corn Meal Mill Hanover St., St. John, N.B.	C. M. Stewart, prop., feeding horses, poultry, swine, etc.	9·25	1·36	8·84	1·91	11·00	67·64
"	5	Shorts	29596	C. H. Peters Sons, Ward St., St. John, N.B.	3 "	25	Jno. Campbell, St. Thomas, Ont., Canada.	Grade principally sold to milkmen feeding cows.	9·15	4 10	10 44	4·97	7·12	64·22
"	10	Middlings	29597	Joshua E. Cowan, 99 Main St., St. John, N.B.	3 "	10	Dewitt Bros., Fairville, St. John Co., N.B.	Bag marked Western Canada Flour Mills Co., Middlings.	8·40	4·42	17·91	3·60	9 00	56·64
"	17	Oil Cake	29598	The Sussex Mercantile Co., Ltd., Sussex, N.B.	3 "	15	Linseed Mills, Montreal, P.Q.	On bag, Fine Canada Linseed Mills. Pure linseed cake meal from 100 lb. bag.	7·75	5·20	31·94	2·65	6·68	45·78
"	18	Feeding Meal	29599	The Chas. Fawcett Mfg. Co., Ltd., Moncton, N.B.	3 "	15	Vendors	Feeding meal ground from imported corn largely sold to farmers	10 30	1·08	8·75	3 58	4·32	71·97
"	20	Middlings	29600	Baird & Peters, Newcastle, N. B.	3 "	20	Ogilvie's Milling Co, Canada.	Bag marked Ogilvie's 100 lb. Middlings.	8·36	4 18	12·94	3·89	6 90	63·73
"	21	Banner Cattle Feed	29601	B. A. Mowatt, Cambellton, N.B.	3 "	15	Quaker Oats Co., Peterboro, Ont.	Bag marked Banner Cattlefood. Vendor said it was cracked corn and oats mixed.	10 16	2 40	9 56	2·44	7·00	68·14

TABLE I.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Moisture.	Ash.	Protein.	Fat.	Fibre.	Carbohydrates, &c., (Difference).
1908								p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
			DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.—*Con.*										
Jan. 4	Cotton Seed Meal	29602	F. H. Everett, Fredericton, N.B.	3 lbs.	15	Humphreys, Godwin & Co., Memphis, Tennessee, U.S.A.	Cow feed, cotton seed meal, "Dixie" brand.	5·55	4·66	39 19	5·17	18·44	36·99
" 6	Cow Feed	29603	J. M. Tripp, Woodstock, N.B.	3 "	15	Vendors	From wheat, native barley, oats and buckwheat. First 3 equal parts less buckwheat	10 46	2·72	10·94	1·80	18·16	55·98
1907			DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.										
Dec. 3	Feeding Stuff, birds	26344	R. W. Williams, Corner Notre Dame et du Platon.	3 lbs.	30	William Ewing Co., Montreal.		*	*	*	.....	.....	*
" 3	Feeding Stuff, birds	26345	O. Carignan et Fils, Trois Rivières, P.Q.	3 "	30	L. Chaput Fils & Co.		*	*	*	....	....	*
" 3	Feeding Stuff, birds	26346	" "	3 "	30	Hudon & Ursalé		*	*	*	...	...	*
" 3	Fleur Imperial	26347	" "	2 "	4	Ogilvie Flour Co		9·00	2·10	15·48	3·08	1·08	62 26
" 3	Middlings	26348	" "	2 "	1	"		7·90	4 16	16·12	2·60	6·24	62·98
" 3	Shorts	26349	" "	2 "	4	"		8·60	4·76	17·58	4·32	5·64	59·10
" 3	Oil Cake	26350	" "	2 "	5	"		7·15	5·30	35·87	5·57	4 92	41·19
" 3	Bran	26351	" "	2 "	3	"		8·35	5·58	10·44	3·65	7 20	64·78
" 4	Shorts	26352	T. O. Gauthier, 33 Rue des Forges.	2 "	4	"		7·90	4·40	17·50	4·98	7·72	57·50
" 4	Bran	26353	Bellefeuille & Giroux, 46 Rue des Forges.	2 "	5	"		7·87	5·58	14·87	3·93	6·64	61·11

*Bird seed, not analyzed. Collected by mistake, not cattle food.

DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.

14—6	Nov.	20	Anglo-Saxon Stock Food	27901	J. M. Palardy, St. Hyacinthe.	1 box	25	Nat. Drug Co., Montreal	Sold as a fattener	6·65	11·76	14 00	9·63	13·00	44·96
	"	29	Herbageum	27902	M. Bousquet, St. Hyacinthe.	2 lbs.	30	Beaver Mfg. Co., Galt, Ont.	"	6·75	13·30	22·50	6·41	6·78	44·26
	Dec.	2	Wheat Bran	27903	Jos. Chartier, St. Jean.	1 "	2	Chas. R. Cousins & Co., St. Jean.		8·35	6·00	15·31	3·21	6·88	60·25
	"	3	Shorts	27904	J. A. Lequin, Farnham.	1½ "		Ogilvie Milling Co., Montreal.	From a 100 lb. sack	8·70	4·92	18·38	3 54	7·08	57 38
	"	3	Moulée de blé	27905	" "	1½ "		" " "	"	8·75	4 20	20·50	3·53	5·52	57·50
	"	4	"Victor" Stock Food	27906	C. E. Roy, Megantic.	1½ "		The American Cereal Co., Peterboro.	Sack market corn and oat feed.	6·80	3·40	7·50	5 52	12·92	63·86
	"	5	Oil Cake Meal Ground	27907	C.O. Genest & Fils, herbrooke.	1½ "		J. J. Livingston, Baden, Ont., and Montreal, Que.	Sack marked pure oil cake meal.	6·10	5·54	34·38	4·66	7·88	41·44
	"	5	Shorts	27908	A. McKenzie, Richmond.	1½ "		The Renfrew Milling Co., Renfrew Ont.	Sack marked the Renfrew Roller Mills Co.	6·65	4·58	18·19	4·47	8·84	57·27
	"	6	Moulee "Schumacher Brand."	27909	E. Brunneau, Victoriaville.	1½ "		The Quaker Oats, Peterboro, Ont.	From 100-lb. sack, No. 27909.	7 30	3·36	11·58	2 58	10 08	65·10
	"	12	Oil Cake Meal Ground	27934	E. Lafontaine, Drummondville.	3 "	10	Wm. Ewing & Co., Montreal.	No. 27907	8·65	5·22	37 88	1·83	7·72	38.70

DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.

Dec.	4	Shorts	31529	S. Thibault & Cie, Montreal.	2 lbs.	5	Brunneau, Currie & Co., Montreal.		7·60	4·26	16·81	5·60	6·80	58 63
"	4	Moulee	31530	" "	2 "	5	Mfg. at L'Epiphanie, Que.		8·30	2·90	20 41	2 26	8.88	57·25
"	4	Bran	31531	" "	2 "	5	Ogilvie Milling Co., Montreal.		8 20	5·64	16·25	4·04	9·36	56·51
"	4	Linseed Meal	31532	James Scott & Co., Montreal.	2 "		Dom. Linseed Oil Co., Montreal.		2·62	3·48	24·06	9 62	9·68	51·14
"	4	Oil Cake Meal	31533	" "	2 "		" "		7·05	5·40	35·87	5·47	5 96	40·25
"	4	Banner Feed	31534	" "	2 "		American Cereal Co.		7·70	3·14	10·06	4·86	7·08	67·16
"	9	Bran	31535	McDonald & Robb, Valleyfield, P. Q.	2 "	5	Vendors		7·50	5·50	14·69	4 10	7·28	60·93
"	9	Oil Cake Meal	31536	" "	2 "	5	Dom. Linseed Oil Co.		6·80	5·18	33·91	5 84	6·20	44·04
"	9	Shorts	31537	" "	2 "	5	Vendors		7·65	3·84	16·81	5·31	7·64	58·75
"	9	Mixed Provender	31538	" "	2 "	5	"		8 40	2·02	13·31	1·96	3·12	71·19

TABLE I.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

Date of Collection.	Nature of sample.	No. of sample.	Name and address of of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Moisture.	Ash.	Protein.	Fat.	Fibre.	Carbohydrates, etc., (Difference.)
1907.								p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.													
Dec. 9	International Stock Feed.	34105	J. A. Bennet, Ottawa.	2 lbs.	40	International Stock Food Co., Toronto, Ont. and Minneapolis, Min.	Marked on pail, Every pail 25 lbs., $3.75, saves $7.00 worth of corn and oats.	6·70	14·74	12·44	3·38	8·16	54.58
" 9	Herbageum Poultry Food.	34106	" "	2 "	30	Beaver Mfg. Co., Galt, Ont.	Bag market, Herbageum is unsurpassed for all kinds of poultry Superior to all else for fattening and for production of eggs.	6·70	15·26	22·31	6·22	7·80	41·71
" 10	Oil Cake	34107	R. Russell, Ottawa	2 "	10	J. & J. Livingston, Baden and Montreal	.....	7·75	5·30	35·63	6·45	6·28	38·59
" 10	The Canada Stock Food.	34108	W. A. Blyth, Ottawa....	2 "	50	The Canada Stock Food Co., Brockville, Ont.	Marked Medicated food. Prepared from barks, roots and seeds and herbs. Mfg. by the Canada Stock Food Co., Brockville.	7·20	11·40	16·13	7·12	9·04	49·11
" 10	Shorts..... ...	34109	" "	2 "	5	Ogilvie Flour Mills Co., Montreal and Winnipeg.	....	8·40	4·30	17·00	3·08	7·68	59·54
" 10	Banner Cattle Food.	34110	Millar & Co., Ottawa...	2 "	5	American Cereal Co., Peterboro, Ont.	....	8·20	2·34	8·69	2·60	9·32	68·85
" 10	Schumacher Stock Food.	34111	....	2 "	5	Quaker Oats Co., Peterboro, Ont.	Marked, Schumacher Stock Feed is not sold in bulk. None genuine unless in sacks. Analysis—Crude protein 10 to 12%, crude fat 4 to 5%.	8·80	3·22	10·74	4·96	9·16	63·12

"	14	Bran	34112	Allen & Co., Ottawa	2	"	10	Sutcliffe Muir Co., Moosomin			9·00	5·24	14·69	2·80	13·64	54·63
"	14	Provender	34113	H. Pullan, Ottawa	2	"	10	The Ottawa Milling Co.			8·00	4·00	7·87	1 60	10·16	68·37
"	14	Shorts	34114	L. O. Joly, Ottawa	2	"	5	Not known			7·65	4·64	16·22	5.35	5·96	60·18

DISTRICT OF KINGSTON—J. HOGAN, INSPECTOR.

Dec.	2	Bran	32187	J. A. Farlane, Brock St., Kingston.	2 lbs.		5	Quaker Oats Co., Peterboro, Ont.			7·60	6·18	15·69	4·24	7·36	58·93
"	2	Oil Cake	32188	" "	3	"	10	N. C. Polson Co., Kingston.			6·85	5·30	38·75	5·71	6·04	37·35
"	2	Shorts	32189	" "	3	"	5	Lake Huron Milling Co., Goderich.			7·55	4·00	17 31	5 41	5·92	59·71
"	2	Bran	32190	W. J. Peters, Brock St., Kingston.	3	"	10	Lake of the Woods Milling Co.			8 25	6 20	15·25	5·64	5·26	58·40
"	2	Oil Cake	32191	" "	3	"	15	Dominion Oil Co., Baden.			6 25	5·40	35·71	5·87	5·12	41·65
"	2	Shorts	32192	" "	3	"	10	Lake of the Woods Milling Co.			6·95	4·38	18 56	5·45	6·22	58·41
"	2	Bran	32193	D. Hutchison, Market St., Kingston.	3	"	10	Seaforth Milling Co			7 90	5 58	14·50	4·66	7·48	59·88
"	2	Shorts	32194	A. Hutchison, Market St., Kingston.	3	"	10	" "			7 70	3·82	15·50	5·02	7·28	60·68
"	3	Shorts	32195	H. E. Fairfield, Front St., Belleville.	3	"	5	Wasts Canada Milling Co.			7 95	3·96	17·25	5·53	6·92	58·37
"	3	Bran	32196	" "	3	"	10	Quaker Oats Co., Peterboro.			8 70	5 60	15·48	4·02	6·92	59·28

DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.

Dec.	9	Ground Oil Cake	33361	A. V. Charlebois & Son, Penetanguishene.	2 lbs.		6	Wm. Rennie, Seed Merchant, Toronto.	Sample taken from large sack and not labelled.		7 15	5·56	36·38	1 65	9·52	39·60
"	10	Bibby's Bream Equivalent.	33362	Gould Bros., Midland	2	"	10	J. Bibby & Sons, Liverpool.	Labelled Bibby's Cream Equivalent, mixed with separated or skimmed milk, for raising calves.		6·20	5·16	14 25	7·08	7·16	59·85
	11	Ground Cotton Seed Meal.	33363	Geo. Vick & Sons, Orillia	2	"	10	Vendor manufacturer			3·50	3·28	23 37	21·14	7 04	38·67
	12	Linseed Meal	33364	James Cheeseman, Barrie	2	"	10	L. L. Livingston Baden	Sack labelled pure linseed meal.		3·15	3 88	26·06	11·57	5·60	46·74
	13	Ground Corn	33365	Geo. Gibb, Collingwood	2	"	10	Cameron & Shipley, Collingwood.			9·50	1·38	8 31	1·82	3·72	75·27
	13	Stock Food Stuff	33366	McConnell Bros., Meaford.	1 pkg		50	Dr. Scott Co., London	Labelled Condensed Stock Dietic Compound.		7·95	14 68	19·88	1·61	5·72	60·16

TABLE I.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Moisture.	Ash.	Protein.	Fat.	Fibre.	Carbohydrates, &c., (Difference).
1907.								p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
			DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.—*Con.*										
Dec. 17	Calf Meal	33367	John Johnson, Orangeville.	2 lbs.	10	W.J. Barwell, Waukegan	Labelled a perfect milk substitute. Called Blackford's Calf Meal	7·64	4·58	26·25	2·21	4·50	54·82
" 19	Linseed Meal	33368	Thos A. Kellman, Brampton.	2 "	10	Vendor		4·68	1·80	21·50	9·87	7·50	54·65
" 19	Wheat Bran	33369	Thos. L. Taylor, Brampton.	2 "	5	Norval Flouring Mills, Norval.		9·76	6·16	15·12	2·39	13·25	53·32
" 19	Shorts	33370	D. A. Brooks, Georgetown.	2 "	5	Henry Bracken, Boston Mills.		9·08	3·40	15·21	3·42	8·60	60·29
			DISTRICT OF LONDON—T. KIDD, INSPECTOR, AND H. J. DAGER, ACTING INSPECTOR.										
Nov. 29	Food Stuff	30440	W.E. Kerslake, Seaforth	2 lbs.	10	Wm. Rennie, Toronto	Sold to vendor as Bibby's Cream Food.	6·20	5·38	14·25	6·16	5·04	62·97
" 30	Herbageum	30447	Vidans & Co., Goderich	2 "	30	Beaver Mfg., Galt., Ont.		7·30	16·50	23·00	5·82	8·48	38·90
Dec. 2	Stock Food	30453	John Byers, Stratford	1½ "	15	Dr. Hess, Ashland, Ohio.	Taken from bag marked Dr. Hess, Ashland, Ohio.	6·25	32·84	10·94	4·47	8·60	36·90
" 2	"	30454	Brickman & Morrison, Stratford.	1½ "	15	Pratt's Stock Food Co.	Called "Pratt's Food Regulator".	6·00	10·50	15·31	4·80	6·72	56·67
" 4	Oil Cake	30457	D. Cook	2 "	10	Gorman & Eckart, London, Ont.		7·55	5·26	35·00	2·69	12·04	37·46
" 5	Food Stuff	30459	J. & H. Fields, Mitchell.	1½ "	10	Twin City Stock Food Co., Berlin.		7·50	7·82	18·09	1·41	3·44	61·74
" 20	Feeding Stuff	35013	J. L. Eidt	2 "	15	J. L. Eidt, Berlin.	Called Herb Food, and mfg. by vendor for milk and flesh food.	6·50	13·06	19·06	4·10	8·72	48·56

Dec.	23	"	35014	Patrick Bros., Woodstock	2	"	8	Vendors	Linseed meal. Sample was taken from sack in store.	4·00	3·82	23·63	15.12	6·76	46·67
"	24	"	35015	C. S. Cotch, Windsor	3	"	25	W. A. Freeman & Co., Hamilton.	Oil Cake Meal	4·00	6·04	24·06	11·08	7·88	46·94
"	26	"	35016	Jos. D. Soutor, 5th St. opposite County Blgds.	2	"	10	Freeman Fertilizer Co., Hamilton.	Sample taken from sack branded Meat Meal, with trade mark 'Best on Earth.'	4·80	27·48	48·44	7·88	8·44	2·96
"	27	"	35017	R. Hookway & Son, London.	2	"	5	Hunt Bros., City Mills, London.	Wheat bran	8·25	5·80	15·56	3·71	7·18	59·30
"	27	"	35018	Chas. Cowan, London	2	"	5	Wallaceburg Beet Sugar Co., Wallaceburg.	Nat. Stock Food, made from beet pulp dried, and other materials.	6·80	6.32	11·81	3·04	9·60	62 33

DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.

Dec.	10	Shorts	25663	Rae & Co.	2	lbs.	5	Western Milling Co., Brandon, Man.		6·55	4·10	17·06	3·37	7·60	61·32
	12	Poultry Food	25671	Carnefac Stock Food Co., Winnipeg.	2	"	25	Vendors		6·90	9·20	17·50	6·38	52·76	7·26
	12	Bran	25672	" "	2	"	10	Winnipeg Flour Mills		7·90	6·24	14·00	4·34	8·48	59·04
	12	Shorts	25673	" "	2	"	5	" "		8·60	2·48	16·38	5·28	7·72	60·14
	12	Bran	25674	Wilton Bros., Winnipeg.	2	"	5	Western Milling Co., St. Boniface, Man.		7·40	6·60	14·94	4·72	7·88	58·46
	12	Shorts	25675	" "			5	" "		7·00	4·62	17·25	5·52	6·44	59·17
	12	Shorts	25676	Olafson & Sevinsson, Winnipeg.	2	lbs.	No chg.	Winnipeg Flour Mills		7·55	4·18	15·31	4·57	5·36	63·03
	12	Bran	25677	" "	2	"	"	" "		8·00	6·10	14·94	3·60	10·04	57·32
"	12	Oil cake	25678	" "	2	"	"	" "		5·90	5·84	31·63	4·58	7·84	44·21
"	12	Ground Linseed	25679	" "	2	"	"	" "		4·65	3·94	19·69	14·59	7·16	49·97

1908.

DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.

Jan.	9	Chop Barley	28856	J. S. Love, Calgary	2	lbs.	5	Vendor		9·00	3·90	11·37	1·20	9·88	64·65
"	9	Chop Oats	28857	" "	2	"	5	"		8·55	3·16	9·62	2·49	9·56	66·62
"	9	Shorts	28858	" "	2	"	5	"		9·10	3·20	18·68	5.22	10·24	53·56
	9	Bran	28859	C. Wallace, Calgary	2	"	5	Calgary Milling Co., Calgary.		9·25	4·70	13·56	3·39	7·80	61·30
	9	Shorts	28860	" "	2	"	5	" "		8·80	2·96	14·79	3·61	6·32	63·49

TABLE I.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Addres of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Moisture.	Ash.	Protein.	Fat.	Fibre.	Carbohydrates, &c., (Difference.)
				Quantity.	Cents.								
1908.								p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR—*Con.*													
Jan. 13	Shorts	26861	D. T. C. Williamson, Medicine Hat.	2 lbs.	5	Medicine Hat Milling Co., Medicine Hat.		9·70	3·14	18·32	3·18	8·88	56·78
" 14	Shorts	28862	Hudson Bay Co., Lethbridge.	2 "	5	Raymond Milling Co., Raymond		9·30	2·98	16·88	3·10	8·00	59·74
" 14	Bran	28863	" "	2 "	5	" "		7·15	5·28	15·31	4·85	10·12	57·29
" 18	Shorts	28864	Tuttle & Dauphin, Strathcona.	2 "	5	Campbell & Otherwell, Edmonton.		8·25	4·08	14·19	4·67	7·84	60·97
" 18	Bran	28865	" "	2 "	5	Ritchie Milling Co., Strathcona.		7·75	4·10	14·06	4·13	7·08	62·88
DISTRICT OF VANCOUVER—E. B. PARKINSON, INSPECTOR.													
Dec. 13	Chop Feed	32177	Brackman & Ker Milling Co., Vancouver.	3 lbs.	5	Vendors		9·00	3·32	8·66	3·15	7·92	67·95
" 13	Oil Cake Meal	32178	" "	3 "	10	"		6·80	5·64	36·22	4·88	9·80	36·66
" 13	Bran	32179	" "	3 "	5	Ogilvie Milling Co., Winnipeg, Man.		9·20	5·10	17·41	3·36	8·68	56·25
" 13	Shorts	32180	" "	3 "	5	Sprague Roller Mills, Sprague, Wash.		8·80	3·64	17·41	4·40	6·60	59·15
" 16	Bran	32181	F. Allen, Vancouver	3 "	5	Ogilvie Milling Co., Winnipeg, Man.		9·65	5·72	14·87	2·87	8·64	58·25
" 16	Shorts	32182	"	3 "	5	" "		9·30	4·54	16·19	4·86	6·64	58·47
" 16	Corn Chop	32183	Fox Bros., Quebec	3 "	10	Vendor		9·70	2·36	10·25	3·08	3·40	71·11

"	16	Oat Chop	32184	W. Erichsen & Son, Vancouver.	3	"	10	Vendors	10 00	2·30	10·06	2·20	8·72	66·72
"	16	Wheat Chop	32185	The Vancouver Milling & Grain Co., Vancouver B.C.	3	"	5	"	9·50	1·84	14·26	1·90	3·38	69·12
"	16	Chop	32186	" " "	3	"	5	"	9·00	2·66	9·71	3·84	12·20	62·59

DISTRICT OF VICTORIA—D. O. SULLIVAN, INSPECTOR.

1908.																
Jan.	4	Oil Cake	34805	Geo. S. Pearson & Co., Nanaimo, B.C.	2	lbs.	5	W. Rennie, Toronto	6·95	5·92	35·81	5·53	9·28	36·51
"	17	Shorts	34807	Sylvester Feed Co., Victoria.	2	"	5	Moosejaw Mills, Moosejaw.	8·15	2·82	15·81	2·65	8·36	62·21
"	17	Bran	34808	" "	2	"	5	Columbia Flour Mills, Enderby, B.C.	8 35	4 41	15·75	1·83	7·28	62·35
"	17	Oil Cake	34809	" "	2	"	5	J. A. Body & Co., Winnipeg.	6 00	5 42	32·38	6·04	9·36	40·90
"	17	Bran	34810	Geo. N. Gower, Victoria, B.C.	2	"	5	Columbia Flour Mills, Enderby, B.C.	8 65	6·38	15·13	2·07	7·08	60·69
"	17	Shorts	34811	" "	2	"	5	" "	8·35	4·44	15·13	1·81	6·48	62·79
"	17	Oil Cake	34812	" "	2	"	5	Linseed Oil Mills, Winnipeg.	5 80	5·40	32·75	5·40	9 88	41·77
"	17	"	34813	Scott & Peden, Victoria, B.C.	2	"	5	" "	7·25	5·06	29·75	3·47	11·54	42·93
"	17	Shorts	34811	" "	2	"	5	Hall Milling Co., Lumsden.	8·55	3·60	15·13	1·61	9·52	61·59
"	17	Bran	34815	" "	2	"	5	Vancouver Milling & Grain Co., Vancouver.	7·55	5·96	14·38	3·13	9·52	59·46
		Choice Ruby Chop		See File 94797					6·50	4·30	6 13	2·30	21·72	59·05

TABLE II.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

BRAN.

Number of Sample.	Moisture.	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c. (Difference).	Relative Value.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
25672	7·90	6·24	14·00	4·34	8·48	59·04	121
25674	7·40	6·00	14·94	4·72	7·88	58·46	129
25677	8·00	6·10	14·94	3·60	10·04	57·32	125
26351	8·35	5·58	10·44	3·65	7·20	64·78	111
26353	7·87	5·58	14·87	3·93	6·64	61·11	128
27493	9·04	5·78	15·75	3·26	8·80	57·37	126
27496	8·75	6·36	14·00	3·45	8·92	58·52	121
27507	7·95	6·30	14·06	3·49	8·40	59·80	123
27543	8·35	6·00	15·31	3·21	6·88	60·25	113
28859	9·25	4·70	13·56	3·39	7·80	61·30	122
28863	7·15	5·28	15·31	4·85	10·12	57·29	128
28865	7·75	4·10	14·06	4·13	7·08	62·88	128
29594	9·05	6·50	14·44	1·66	14·24	54·11	115
31731	8·20	5·64	16·25	4·04	9·36	56·51	129
31780	6·50	5·70	12·25	1·70	9·28	64·57	116
32197	9·20	5·10	17·41	3·36	8·68	56·25	132
32481	9·05	5·72	14·87	2·87	8·64	58·25	123
32487	7·60	6·18	15·69	4·21	7·36	58·93	131
32490	8·25	6·20	15·25	5·61	6·26	58·40	130
32493	7·90	5·58	14·50	4·66	7·48	59·88	126
32496	8·70	5·60	15·48	4·02	6·92	59·28	129
33979	9·76	6·16	15·12	2·39	13·25	53·32	119
34112	9·00	5·24	14·69	2·80	13·64	54·63	119
34808	8·35	4·44	15·75	1·83	7·28	62·35	130
34810	8·65	6·38	15·13	2·07	7·08	60·69	126
34815	7·55	5·96	14·38	3·13	9·52	59·46	123
35017	8·25	5·80	15·56	3·71	7·48	59·20	129
Means	8·31	5·73	14·74	3·48	8·69	59·15	126

TABLE III.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

SHORTS.

Number of Sample.	Moisture.	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c., (difference).	Relative value.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	*
25663	6 55	4 10	17 06	3 37	7 [illegible]	61 32	136
27674	8 00	2 48	15 88	3 28	7 72	60 14	136
25675	7 00	4 62	17 25	3 82	6 44	59 17	139
25676	7 55	4 18	15 31	4 37	5 86	63 03	133
26549	8 60	4 76	17 56	4 32	5 64	59 10	137
26572	7 90	4 40	17 [illegible]	4 88	7 72	57 [illegible]	137
27894	8 70	4 02	18 38	3 54	7 [illegible]	57 [illegible]	138
27898	6 65	4 58	18 10	4 47	8 84	57 [illegible]	139
28858	9 10	3 20	18 68	3 22	1 24	55 [illegible]	139
28860	8 80	2 [illegible]	14 79	3 [illegible]	6 82	62 40	131
28861	9 70	3 14	18 32	3 18	8 88	56 78	136
28862	9 30	2 [illegible]	16 88	3 10	8 [illegible]	58 74	134
28864	8 25	4 [illegible]	14 10	4 07	7 84	61 [illegible]	127
29066	9 15	4 10	16 44	4 97	7 12	64 22	116
31729	7 60	4 26	16 81	3 [illegible]	6 80	59 [illegible]	138
31537	7 65	3 84	16 81	3 81	7 64	58 75	137
32180	8 80	3 64	17 41	3 58	8 68	58 11	134
32182	9 30	4 24	16 19	4 86	6 64	58 47	133
32489	7 55	4 00	17 31	3 41	5 92	59 81	139
32492	6 95	4 58	18 56	5 45	6 22	58 44	144
32494	7 70	3 82	15 70	5 02	7 28	60 68	133
32495	7 95	3 96	17 25	3 58	6 32	58 85	138
33570	9 08	3 40	15 21	3 42	8 60	60 29	128
33188	9 12	4 68	15 69	3 53	5 28	61 70	132
34109	8 40	4 20	17 00	3 08	7 68	59 54	134
34114	7 65	4 64	16 22	5 35	5 06	60 18	136
34807	8 15	2 82	15 81	2 65	8 86	62 21	131
34811	8 35	4 44	15 13	1 81	6 48	63 79	128
34814	8 55	5 60	15 13	1 61	9 52	61 59	126
Means	8 35	3 96	16 44	4 23	7 33	59 81	134

* For explanation of the relative value see page 8.

TABLE IV.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

MIDDLINGS.

Number of Sample.	Moisture	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates &c. (Difference).	Relative value.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	*
26318	7·90	4·16	16·12	2·60	6·24	62·98	**133**
27396	5·96	4·22	13·81	3·64	5·90	66·47	**130**
29597	8·40	4·42	17·94	3·60	9·00	56·64	**135**
29600	8·36	4·18	12·94	3·89	6·90	63·73	**123**
31176	6·05	4·50	16·81	2·87	9·68	60·09	**134**
33486	8·55	6·08	17·50	2·36	14·40	51·11	**125**
33487	8·00	6·06	17·50	2·36	14·40	51·68	**126**
Means	7·60	1·80	16·09	3·05	9·50	58·96	**129**

* For explanation of the relative value see page 8.

TABLE V.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

CHOP FEED (MOULÉE).

Number of Sample.	Moisture.	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c. (Difference).	Relative value.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	*
26347	9 00	2 10	15 48	3·08	1 08	69·26	137
27398	8 85	2 32	15 50	3·99	1·84	67 70	137
27399	8 50	4 36	15·75	3 42	5 61	62 33	132
27400	9 16	1 76	10 77	3 39	5 85	69 07	119
27905	8 75	4·20	20·50	3·53	5 52	57 50	117
27909	7 30	3·36	11·58	2 58	10·08	65 10	117
28856	9 00	3·90	11 37	1 20	9 88	64 65	112
28857	8·55	3 16	9·62	2·49	9 56	66 62	110
29595	9 25	1 36	8 84	1 91	11 00	67 64	107
29599	10 30	1 08	8 75	3 58	4 32	71 97	114
29601	10·16	2 40	9 56	2·44	7 00	68 44	112
29603	10·40	2·72	10 94	1 80	18 16	55 98	103
31177	7 60	2 20	14·50	1 60	5·12	68 98	130
31178	7 45	2 26	7 69	2 31	9·72	70 57	106
31181	8 10	1 82	10 94	3·42	5 08	70 64	121
31530	8 30	2 90	20·41	2·26	8 88	57 25	113
31531	7 70	3 14	10 06	4 86	7·08	67 16	117
31538	8 40	2 02	13 31	1 96	3·12	71 19	128
32177	9·00	3·32	8 66	3 15	7 92	70·95	112
32183	9 80	2 36	10 25	3·08	3·40	71·11	118
32184	10 00	2·30	10·06	2 20	8 72	66·72	111
32185	9·50	1·84	11 26	1·90	3 38	69·12	129
22186	9·00	2 66	9 71	3 84	12·20	62·59	110
33365	9·50	1 38	8·31	1 82	3·72	75·27	112
31110	8·20	2 34	8 69	2 60	9·32	68 85	109
31111	8·80	3 22	10 74	4·96	9·16	63·12	116
31113	8 00	4·60	7 87	1·60	10·16	68·37	103
Special	6 50	4·30	6 13	2·30	21 72	59·05	88
Means	8 75	2 67	11·44	2·79	7·80	66 68	118

* For explanation of the relative value see page 8.

TABLE VI.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

MEAL OR OIL CAKE MEAL.

Number of Sample.	Moisture.	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c. (Difference).	Relative value.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	*
25678	5·90	5·84	31·63	4·58	7·84	44·21	**180**
25679	4·65	3·94	19·69	14·59	7·16	50·97	**159**
26359	7·15	5·30	35·87	5·57	4·92	41·19	**196**
27907	6·10	5·54	34·38	4·66	7·88	41·44	**188**
27934	8·65	5·22	37·88	1·83	7·72	38·70	**194**
29598	7·75	5·20	31·94	2·65	6·68	45·78	**179**
29602	5·55	4·66	39·19	5·17	18·44	26·99	**194**
30457	7·55	5·26	35·00	2·69	12·04	37·46	**183**
31175	7·75	4·92	35·70	1·73	7·28	42·62	**189**
31184	7·60	4·96	36·56	2·04	11·64	37·20	**188**
31532	2·62	3·48	24·06	9·62	9·08	51·14	**167**
31533	7·05	5·40	35·87	5·47	5·96	40·25	**191**
31536	6·80	5·18	33·94	5·84	6·20	42·04	**189**
32178	6·80	5·64	36·22	4·83	9·80	36·66	**192**
32488	6·85	5·30	38·75	5·71	6·04	37·35	**203**
32491	6·25	5·40	35·71	5·87	5·12	41·65	**197**
33361	7·15	5·50	36·38	1·65	9·52	29·80	**188**
33363	3·50	3·28	23·37	24·14	7·04	38·67	**180**
33364	3·15	3·88	26·06	14·57	5·60	46·74	**180**
33368	4·68	1·80	21·50	9·87	7·50	54·68	**163**
34107	7·75	5·30	35·63	6·45	6·28	38·59	**194**
34805	6·95	5·92	35·81	5·53	9·28	36·51	**190**
34809	6·00	5·42	32·38	6·04	9·36	40·80	**182**
34812	5·80	5·40	32·75	5·40	9·88	40·77	**182**
34813	7·25	5·06	29·75	3·47	11·54	42·93	**168**
35011	4·00	3·82	23·63	15·12	6·76	46·67	**172**
35015	4·00	6·04	24·06	11·08	7·88	46·94	**165**
Means	6·12	4·91	31·23	6·89	8·31	46·17	**185**

* For explanation of the relative value see page 8,

TABLE VII.—CONCENTRATED COMMERCIAL FEEDING STUFFS.

MISCELLANEOUS

No. of Sample.	Name.	Moisture.	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c. (Difference)	Relative value.	Remarks.
		p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
26344	Bird Seed	. . .	. . .	. .	. . .	. . .	.	. . .	Whole seed, not analysed . .
26345	"	. . .	. . .	. . .	. . .	. .	. . .	. . .	" "
26346	"	. . .	. . .	. . .	. . .	. .	. . .	. . .	" "
27906	Victor Brand	6·80	3·40	7·50	5·52	12·92	63·88	105	Compare with Table V. See also Nos. 27121 and 2846 of Bulletin 116.
30440	Bibby's	6·20	5·38	14·25	6·16	5·04	62·97	132	Compare with Table V. See also No. 28469 of Bulletin 116.
33362	"	6·20	5·46	14·25	7·08	7·16	59·85	131	
30459	Twin City	7·50	7·82	18·09	1·41	3·41	61·74	137	Compare with Table V.
31179	Molac	5·25	5·28	15·38	5·23	7·48	61·38	133	Very unequal values in these two samples.
31182	"	7·20	6·20	9·44	3·36	11·28	62·52	107	
33367	Calf Meal	7·64	4·58	26·25	2·21	4·50	54·82	161	
35018	National Stock Food	6·80	6·32	11·81	3·04	9·60	62·43	116	
27901	Anglo-Saxon	6·65	11·76	14·00	9·63	13·00	44·96	120	Contains 5·24 per cent common salt.
30447	Herbageum	7·30	16·50	23·00	5·82	8·48	38·90	141	Contains 13·12 per cent common salt.
34106	"	6·70	15·26	22·31	6·22	7·80	41·71	143	Contains 10·15 per cent common salt.
27902	"	6·75	13·30	22·50	6·41	6·78	44·26	147	Contains 10·60 per cent of common salt. Is rather a condition powder than a regular feed. Other "Herbageum" products are Nos. 24136, 24788, 29201 of Bulletin 116 and 28052 of Bulletin 117.
25671	Carnafac	6·90	9·20	17·50	6.38	52·76	7·26	90	Of little food value; a condition powder. Other carnafac products are Nos. 28535 and 25710 of Bulletin 116, and 24792 and 28479 of Bulletin 117.
30453	Hess	6·25	32·84	10·94	4·47	8·60	36·90	90	Contains about 25 per cent of common salt. Is rather a condition powder than a food. Other samples of Hess products are Nos. 28471 and 25715 of Bulletin 116.
30454	Pratt's	6·00	10·50	15·31	4.80	6.72	56·67	128	Contains 7·24 per cent common salt. Is a condition powder rather than a food. For other Pratt products, see Bulletin 116, No. 28459 and Bulletin 117, Nos. 26857 and 28473.
31183	Molascuit	10·30	20·40	4.90	2.50	6·56	55·34	80	Contains 4·48 per cent of common salt. Is of little value as a food, but may have medicinal properties.

TABLE VII.—CONCENTRATED COMMERCIAL FEEDING STUFFS—*Con.*

MISCELLANEOUS—*Concluded.*

No. of Sample.	Name.	Moisture	Ash.	Proteids.	Fat.	Fibre.	Carbohydrates, &c. (difference)	Relative value.	Remarks.
		p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
33366	Dietetic	7·95	14·68	19·88	1·61	5·72	50·14	133	Contains 7·19 per cent of common salt.
34105	International	6·70	14·74	12·44	3·38	8·16	54·58	114	Contains about 14 per cent of common salt. For other International products, see Nos. 27114, 24121, 29055, 26068, 26856, 28470, 28571, 25711 and 28042 of Bulletin 116; also Nos. 28480 and 28482 of Bulletin 117.
34108	Canada Stock Food	7·20	11.40	16·13	7·12	9·04	49·11	128	Contains 6.92 per cent of common salt.
35013	Herb Food	6.50	13·06	19.06	4·10	8·72	48·56	133	" "
35016	Meat Meal	4.80	27·48	48.14	7·88	8·44	2·96	212	Contains 12 06 per cent of common salt.

APPENDIX G.

BULLETIN No. 157—MAPLE PRODUCTS.

Ottawa, July 9, 1908.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I beg to hand you a report upon a collection of Maple Products made in May and June of this year, and consisting of 71 samples of Maple Syrup and 71 samples of Maple Sugar.

These results are summarized in the following tables:—

MAPLE SUGAR.

Inspectoral District.	Declared Compound.	Genuine.	Adulterated.	Doubtful.	Total.
Nova Scotia		5	–	–	5
Prince Edward Island	–	5	–	–	5
New Brunswick		5	–	–	5
Quebec	–	5		–	5
St. Hyacinthe	–	6			6
Montreal	–	4	1		5
Ottawa	–	4	1		5
Kingston	–	3	2		5
Toronto	–	3	2		5
London	–	5		–	5
Windsor	–	5	1	–	6
Manitoba	–	4		1	5
Calgary	–	–	–	–	–
Vancouver	–	5	–	–	5
Victoria	–	3	1	–	4
		62	8	1	71

MAPLE SYRUP.

Inspectoral District.	Declared Compound.	Genuine.	Adulterated.	Doubtful.	Total.
Nova Scotia	–	5	–	–	5
Prince Edward Island	–	5	–	–	5
New Brunswick	–	5	–	–	5
Quebec	–	5	–	–	5
St. Hyacinthe	–	5	–	–	5
Montreal	–	4	1	–	5
Ottawa	–	4	1	–	5
Kingston	1	4	–	–	5
Toronto	–	4	1	–	5
London	1	4	–	–	5
Windsor		6	–	–	6
Manitoba	1	3	1	–	5
Calgary	–	–	–	–	–
Vancouver	–	4	1	–	5
Victoria	–	4	1	–	5
	3	62	6		71

The following synopsis of work done since 1905 upon Maple Products, is of interest :—

MAPLE SUGAR.

Date of Inspection.	Bulletin.	Sold as Mixture.	Genuine.	Doubtful.	Adulterated.	Total.	Percentage Genuine.
March, 1905	102	0	12	2	8	22	55
May, 1905	102	0	15	0	3	18	83
March, 1906	120	0	11	3	12	26	42
May, 1906	120	1	44	0	7	52	85
May, 1907	140	5	185	10	57	257	72
May, 1908	157	0	62	1	8	71	87
						446	

MAPLE SYRUP.

Date of Inspection.	Bulletin.	Sold as Mixture.	Genuine.	Doubtful.	Adulterated.	Total.	Percentage Genuine.
March, 1905	102	0	17	4	76	97	18
May, 1905	102	0	44	2	29	75	59
March, 1906	120	8	22	2	53	85	26
May, 1906	120	9	88	17	57	171	52
May, 1907	141	37	187	2	20	244	77
Feb'y, 1908	155	6	61	4	13	84	73
May, 1908	157	3	62	0	6	71	87
						827	

It thus appears that this laboratory has examined 1,273 samples of Maple Sugar and Maple Syrup, during the last three years, these samples representing the articles as occurring in regular trade. In addition to the above, a considerable number of samples have been received for analysis under the departmental regulations which provide that any manufacturer, importer, retailer or purchaser may obtain analysis on payment of a fee of five dollars.

A noteworthy increase in the percentage of genuine samples is observable ; and this is especially marked in the case of Maple Syrup.

Besides the regular collections herein reported, a special collection of 14 samples maple sugar and 12 samples of syrup was made on the 14th April, on the market at Joliette. All the sugars were found genuine, and 11 of the syrup samples were undoubtedly genuine. One sample of syrup gives analytical results of a kind to raise suspicion as to its genuineness, but not sufficiently positive to prove adulteration.

On the 2nd May, 4 samples of sugar and 5 samples of syrup were specially collected at the market, Actonvale. All of them proved to be genuine.

I beg to recommend the publication of this report as Bulletin No. 157.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	Number of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Percentage on Dry Substance. Lead Subacetate precipitate.	Total ash.	Malic acid value.	Remarks and Opinion of the Chief Analyst.
1908								p. c.	p. c.	p.c.	
DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.											
May 12	Maple Syrup	33635	W. Chas Anderson, Halifax, N.S.	1 qt.	40	Maple Tree Producers, Waterloo, Qué.	Labelled Pride of Canada Brand.	3·69	.....	.....	Genuine.
" 14	"	33636	J. J. Skerry, Halifax, N.-E.	1 "	30	Eastern Townships Maple Syrup and Sugar Exchange, Sutton, Que.	Sample drawn from gallon can.	3·10	.....	.....	"
" 15	"	33637	E. M. Walker, Dartmouth, N.S.	1 "	30	M. T. Boss, Rodney, N.S.	Drawn from 5 gallon can.	3·53	.....	.....	"
" 19	"	33638	J. H. Barss, Wolfville, N.S.	1 pt.	20	D. R. Gilbert, Gilbert's Mountain, N.S.	Sample from gallon can, not labelled. Sold as pure. The vendor had only a little more than a pint, hence the smallness of sample.	3·23	.....	.....	"
" 21	"	33639	A. F. Ross & Co., Truro, N.S.	1 qt,	30	Maple Tree Producers, Waterloo, Que.	Sample from 5 gallon can, not labelled.	2 67	.....	.....	"
DISTRICT OF PRINCE EDWARD ISLAND—THEO. MOORE, INSPECTOR.											
May 14	Maple Syrup.	31241	Mrs W. F. Carter, Charlottetown.	3 boot.	60	E. McKenzie, Springhill, N.S.	.....	4·13	.....	.....	Genuine.
" 18	"	31242	E. J. DesRoche, Charlottetown.	3 "	60	T. T. McKinnon, Charlottetown.	.....	5·53	.....	.....	"

"	26	"	31243	T. Ching, Summerside	3	"	60	A. W. Westover, Sutton Junction, Qué.		4 92				"
"	28	"	31244	M. Tone, Charlottetown	3	"	50	Unknown		3 04				"
"	28	"	31245	W. S. Brown, Charlottetown.	3	"	50	Robt Mitchell, Lennoxville, Que.		3 23				"

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.

May	13	Maple Syrup	29667	Abner Hatfield, Stall L, City Market, St. John, N.-B.	3bots.	1 05	Wm B. Parent, Upper Queensbury, York Co., N. B.	Labelled Pure Maple Honey Mfd. by W. B. Parent, Upper Queensbury, York Co. Maple syrup is called maple honey here.		3 63				Genuine.
"	20	"	29668	The Sussex Mercantile Co., Ltd., Main St., Sussex, Kings Co., N.-B.	2	"	60	Richard Scott, King's Co., Hammond, N. B.	Vendor's sample taken from one bottle. Balance in original packages sent to Ottawa. No label on bottles.		4 61				"
"	23	"	29670	Mme S.-A. Demers. Public Square, Newcastle, N.-B.	3	"	25	The McCormick Mfg Co., London, Ont.	"The Log Cabin Brand. The only pure, genuine maple syrup. This maple syrup is free from chemicals, acids, brown sugar and all forms of adulteration. It is guaranteed absolutely pure."		3 90				"
June	5	"	29671	C. H. Burt, 332 Queen St., Fredericton, N.-B.	2	"	60	Willard Clark, Lower Line, Queensbury, York Co., N. B.	Labelled "Pure Maple Syrup, Mfd. by Willard Clark expressley for C. H. Burt."		3 90				"
"	5	"	29722	John McKnight, Corner Regent and King Sts., Fredericton, N.-B.	2	"	50	William Moores, Bear Island, York Co., N. B.	Labelled "Pure Maple Honey, Mfd. by Wm. Moores, Bear Island, York Co., N.-B."		4 98				"

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

May	11	Maple Syrup	26412	Roger Germain, Portneuf	1 pt.		13	Roger Germain, Portneuf			4 61			Genuine.
"	14	"	26448	Adjutor Thibadeau, Saint-Basile.	1½	"	32	Ludger Thibadeau, Saint-Basile.			3 81			"
"	15	"	26455	J. T. Marcotte, Saint-Basile.	3½ts.		45	Ferdinand Gauthier, Saint-Basile.			3 13			"

Date of Collection.	Nature of Sample.	Number of Sample.	Name and Adress of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.	Inspector's Report.	Results of Analysis. Percentage on Dry Substances. Lead Subacetate precipitate.	Total ash.	Malic acid value.	Remarks and Opinion of the Chief Analyst.
1908								p. c.	p. c.	p. c.	
DISTRICT OF QUEBEC—E. BELAND, INSPECTOR—*Con.*											
May 15	Maple Syrup.	26460	Daniel Papillon, St-Basile.	3 pts.	60	Daniel Papillon, St-Basile.		3·47			Genuine.
" 26	"	26469	Michel Marcoux, St-Elzéar, Beauce.	1 qt.	35	Michel Marcoux, St-Elzéar, Beauce.		3·29			"
DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.											
May 13	Maple Syrup.	488	O. Lambert, Iberville..	1 gall.	90	Not known	Not labelled. Last production of 1907 syrup.	5·07			Genuine.
" 13	"	489	Oliva Lafaille, Saint-Jean.	1 qt.	20	"	From a 4 gallon vessel, not labelled.	3·67			"
" 14	"	490	H. Paré, Granby	1 "	—	B. Lavigne, Granby.	From a 1 gallon can, not labelled.	3·47			"
" 18	"	491	J. Bédard & fils, Richmond.	1 "	30	J. E. Healy, Richmond.	Labelled "Pure Maple Syrup, made and put up by Julius E. Healy, Richmond, Que. Not guaranteed if seal is broken. Does not appear to have been sealed at all.	3·56			"
" 22	"	492	P. Racine, St-Hyacinthe.	1 "	25	Not known		6·00			"

DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.

May	12	Maple Syrup.	32902	Sugars & Canners Ltd., Parthenais St, Montreal.	1 qt. tin	25	Vendors.	"Silver Leaf Brand, Pure Maple Syrup. Sample taken from packed stock at factory. We guarantee Silver Leaf Brand Maple Syrup to be absolutely pure."	0·73	0·21	0·18	Adulterated.
"	13	"	32903	A. Bowes & Co., McGill St., Montreal.	1 tin.	65	C. Manson, Sweetsburgh, Que.	Sold as pure. No label on tin.	2 55	..	..	Genuine.
"	13	"	32904	Gunn, Langlois & Co., 211 rue St-Paul, Montreal.	1 "	60	Keddy & Kenny, Hemming ford, Que.	" " ..	5·00	..	..	"
"	19	"	32905	A. Anderson, Herdman, Que.	1 "	75	J. W. Purse, Herdman, Que.	..	3 75	..	..	"
"	12	"	32906	J. L. E. Guimond, Beauharnois, Que.	1 qt.	25	James Anderson, St-Etienne, Que.	..	3 53	..	..	"

DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.

May	18	Maple Syrup.	34144	Goodall Bros, 305 Wellington St, Ottawa, Ont.	1 qt.	15	Champlain, Beauce, Que.	Sample from tin marked "Sirop d'Erable de Erablière Champlain en Beauce, Que." Sold as Maple Syrup.	1 49	0·10	0·11	Adulterated.
"	21	"	34145	Fenton & Smith, Pembroke, Ont.	1 "	20	J. W. Buzzell, Abbotsford, Que.	Sample from tin labeled "Sirop d Erable garanti pur, fabriqué par S. Végard, Abbotsford, Que. Sold as Pure Maple Syrup.	3 47	..	..	Genuine.
"	23	"	34146	Banford Bros, Hawkesbury, Ont.	1 "	2	Oliver Graham, Cassburn, Que.	Sample from 5 gallon tin, not labelled. Sold as Pure Maple Syrup.	3 81	..	..	"
"	28	"	34147	A. E. Shaver, Brockville, Ont.	1 "	25	A farmer.	Sample from 5 gallon can. Sold as Maple Syrup.	3·50	..	..	"
"	29	"	34148	Williams & Vanluven, Smith's Falls, Ont.	1 "	20	" ..	" "	3 10	..	..	"

DISTRICT OF KINGSTON—J. H. HOGAN, INSPECTOR.

May	9	Maple Syrup.	35201	F. Stevens, Kingston.	1 qt.	25	F. Stevens, Athens, Ont.	Taken from a tin on Kingston market.	3 29	..	..	Genuine.
"	9	"	35202	Geo. Richardson, 406 Johnston St., Kingston.	1 "	25	A. L. Campbell, Elgin, Ont.	" " ..	3·44	..	..	"

Date of Collection.	Nature of Sample.	Number of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.	Inspector's Report.	Results of Analysis. Percentage on Dry Substance. Lead subacetate precipitate.	Total ash.	Malic acid value.	Remarks and Opinion of the Chief Analyst.
1908				.				p.c.	p. c.	p.c.	
DISTRICT OF KINGSTON—J. H. HOGAN, INSPECTOR—*Con.*											
May 9	Maple Syrup.	35203	Geo. Richardson, 406 Johnston St., Kingston.	1 pt.	25	George Weber, Ardoch, Ont	Taken from a tin on Kingston Market, labelled guaranteed absolutely pure.	3·44	.....	....	Genuine.
" 9	"	35204	C. W. Horning, Kingston.	1 "	25	C. W. Horning, Kepler, Ont.	Taken from a tin on Kingston market.	3·78	.....	....	"
" 12	"	35210	John Sloan, Belleville.....	3 "	75	John Sloan, Belleville....	....				Sold as mixture.
DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.											
May 22	Maple Syrup.	35104	Arthur Lavis, 234 King St. W., Hamilton.	1 pt.	35	Eastern Townships Maple Syrup and Sugar Exchange, Sutton, Que.	Sample from wooden keg labelled, Guaranteed Absolutely Pure Maple Syrup.	4·40	.....	....	Genuine.
" 22	"	35105	Bessey & Falconbridge, 43-44 Market Hall, Hamilton.	1 "	35	Rutherford & Marshall, Toronto.	Sample sold as pure maple syrup. Labelled Maple Syrup.	0·16	0·10	0·06	Adulterated.
" 22	"	35106	A. L. Berry, 329 King St. E., Hamilton.	1 "	35	Eastern Townships Maple Syrup and Sugar Exchange, Sutton, Que.	Sample taken from a 5-gall. can labelled Finest Eastern Townships Maple Syrup. Guaranteed Pure.	2·76	.. ..	...	Genuine.

"	26	"	35107	W. C. Miller, 624 Young St., Toronto.	1 "	20	White & Co., commission fruit dealers, Toronto.	Sold as pure maple syrup. Sample taken from keg marked White & Co.	2·92				"
"	27	"	35108	John Coults, 287 Gerrard St. E., Toronto.	1 "	35	J. Gibson, 52 Walker ave., Toronto.	Sample from 5-gall. can. Vendor said it was pure maple syrup.	3·78				

DISTRICT OF LONDON—T. KIDD, INSPECTOR.

May	12	Maple Syrup.	30494	J. J. M. Ewing, Goderich	1½ pt.	25	Imperial Syrup Co., Montreal.							Sold as mixture.
"	12	"	30498	Sturday & Co., Goderich	1½ "	50	Maple Tree Producers Association, Waterloo, Que.		3·75					Genuine.
"	14	"	30903	W. H. Graham, St-Mary's.	1 qt.	50	Frederick Floyart, Lavenew, Que.		2·60					"
"	16	"	30909	Matthew Williams, Seaforth.	1 "	30	David McConnell, Cromarty, Ont.		3·38					"
"	18	"	30914	Michael Keenghauser, grocer.	1½ "	30	George A. Rock, Hibbert Township, Co. Perth.		4·33					"

DISTRICT OF WINDSOR—J. TALBOT, INSPECTOR.

May	14	Maple Syrup.	34531	R. Wanless & Co., Sarnia.	1 qt.	35	Garrett Safford, Sutton, Quebec.	Taken from large can in store. Labelled Pure Maple Syrup.	3·69					Genuine.
"	14	"	34532	W. C. Palmer, Sarnia	1 "	40	Wm Marshall, farmer, near Arkona.	Taken from barrel not labelled.	2·76					"
"	14	"	34534	S. E. Cornell, Sarnia	3 pts.	50	E. Kearney, Watford	Farmer. No label.	3·53					"
"	18	"	34545	J. T. Gittweler, Berlin	1 qt.		J. T. Gittweler, Berlin		4·09					"
"	18	"	34546	Dunke & Co., Berlin	1 "	35	G. B. Hall, Barnston, Que.	Warranted by G. B. Hall, to be pure within the meaning or the Adulteration Act.	3·53					"
"	19	"	34550	A. Beattie & Co., Stratford.	1 "	40	E. E. Hanmer, Norwich.	Not labelled.	3·07					"

DISTRICT OF WINNIPEG—A. C. LARIVIERE, INSPECTOR.

May	13	Maple Syrup.	33103	D. A. Ritchie, Grocer, Winnipeg.	1 qt.	40	Maple Tree Producers Association, Ltd., Waterloo, Que.	Trade mark, "Pride of Canada".	4·52					Genuine.

Date of Collection.	Nature of Sample.	Number of Sample.	Name and Address of vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Percentage on Dry Substance. Lead subacetate precipitate.	Total ash.	Malic acid value.	Remarks and opinions of the Chief Analyst.
1908								p. c.	p. c.	p. c	
DISTRICT OF WINNIPEG—A. C. LARIVIERE, INSPECTOR—*Con.*											
May 13	Maple Syrup.	33104	J. A. Park, Grocer, Winnipeg.	7 lbs.	1 15	W. M. Farnam, Farnam's Corners, Qué.	Label, "Pure"..... ...	2·57	....	....	Genuine.
" 14	"	33105	Teifer Bros., manufacturers, Winnipeg.	1 qt.	35	Canada Maple Exchange, Montreal.	Trade mark, "Small's Maple Leaf Brand.	2·86	.....	....	"
" 14	"	33106	Robinson & Co., grocers, Winnipeg.	1 "	35	Maple Syrup Sugars, Ltd., Montreal.	Trade mark, "Pure Sap, Canadian".	0·39	0·18	0·02	Adulterated.
" 14	"	33107	T. J. Davis, grocer, Winnipeg.	3 pts.	45	Mfrs., Maple Syrup Sugars, Ltd., Montréal; furnishers, Rodgers & Co., Winnipeg.	"Diamond Brand, Pure Sap, Canadian."	.....	.....	....	Sold as mixture.
DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.											
May 12	Pure Maple Syrup.	34250	J. F. May, Pender St., Vancouver, B. C.	½ gal.	80	E. C. Lynch, Granby, Que.	....	1·24	0·43	0·35	Adulterated.
" 12	" "	34251	H. J. Hampton, Granville St., Vancouver, B.C.	1 qt.	60	Eastern Townships' Maple Sugar and Syrup Exchange.	....	2·75	.....	....	Genuine.
" 12	" "	34252	J. S. Foran, Carrall St., Vancouver, B.C.	"	60	D. McDougall, Martintown, Ont.	.. ..	5·00	.....	....	"
" 12	" "	34253	F. Fillion, Vancouver, B.C.	½ gal.	85	Ouelette, St-Hermas, Que..	. .....	2·55	.....	....	"
" 13	" "	34254	F. Wright, Granvelle St., Vancouver, B.C.	½ pts.	60	G. Blair, Franklin Centre, Que.	....	3·16	.....	....	"

DISTRICT OF VICTORIA—D. O. SULLIVAN, INSPECTOR.

June 17	Maple Syrup..	34886	Windsor Grocery Co., Victoria, B.C.	1 qt.	64	Dingle & Stewart, Winnipeg, Man.	Marked "Silver Leaf Brand, Pure Maple Syrup."	1 11	0·35	0·21	Adulterated.
" 17	"	34887	Windsor Grocery Co., Ltd., Victoria, B.C.	"	60	Maple Tree Producers' Association, Que.	"The Pride of Canada Maple Syrup, guaranteed absolutely pure."	1·27	.....	.....	Genuine.
" 17	"	34888	Saunders Grocery Co., Ltd., Victoria, B.C.	"	50	Eastern Townships Maple Syrup and Sugar Exchange, Sutton, Que.	"Finest Eastern Townships Maple Syrup, guaranteed pure."	3·04	.....	.....	"
" 19	"	34889	W. Speed, Victoria, B.C.	"	50	Canada Maple Exchange, Montreal.	"Smalls' Maple Brand."	3 04	.....	.....	"
" 19	"	34898	Dixi H. Ross & Co., Victoria, B.C.	"	60	W. R. Horner, Granby, Que.	.....	2·57	..	...	

DISTRICT OF NOVA SCOTIA—J. WAUGH, INSPECTOR.

May 12	Maple Sugar..	33640	W. J. Hopgood, Halifax, N.S.	1 lb.	20	E. A. Smith, Springhill, N.S.	Sample taken from a block of 3 or 4 lbs.	3·26	.....	.....	Genuine.
" 12	"	33641	Larder Hubley & Co., Halifax, N.S.	1 "	20	J. F. Harrison, Southampton, N.S.	Sample taken from a 5 lb. block.	5·08	.....	.....	"
" 12	"	33642	Moirs Limited, Halifax, N.S.	1 "	20	.....	Mr. Wm. Moir stated that they did not sell maple sugar retail. Used only for manufacturing and flavouring purposes.	4·78	.....	.....	"
" 20	"	33643	J. W. Dodge & Son, Windsor, N.S.	1¼ "	25	D. R. Gilbert, Gilbert's Mountain, N.S.	Sample put up in 1¼ lb. block.	2·56	.....	.....	"
" 21	"	33644	J. W. Snook, Truro, N.S.	1 "	15	Rowell, Son & Co., Sherbrooke, Que.	Put up in 1 lb. block and sold as pure.	3 26	.....	...	"

DISTRICT OF PRINCE EDWARD ISLAND—T. MOORE, INSPECTOR.

May 14	Maple Sugar..	31236	W. F. Carter, Charlottetown	1 lb.	24	E. McKenzie, Springhill, N.S.	.....	2 60	.....	.....	Genuine.
" 19	"	31237	W. D. Currie, Souris....	1 "	20	F. T. Thomas, Quebec.	.....	5 42	.....	.....	"
" 19	"	31238	Thomas Kickham, Souris West	1 "	20	Not known.		3·80	.....	.....	"
" 23	"	31239	J. P. Duffy, Charlottetown	1 "	18	Carvell Bros., Charlottetown.	.....	2 84	.....	...	"
" 62	"	31240	T. Ching, Summerside ..	1 "	30	W. H. Edgett, Montreal..	This sample, Mr. Ching says, is more of a maple cream quality.	3·29	.....	.....	

Date of Collection.	Nature of Sample.	Number of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Percentage on Dry Substance. Lead subacetate precipitate.	Total ash.	Malic acid value.	Remarks and opinions of the Chief Analyst.
1908								p.c.	p.c.	p.c.	
DISTRICT OF NEW BRUNSWICK J. C. FERGUSON, INSPECTOR.											
May 13	Maple Sugar.	29672	McPherson Bros., 181 Union St., St. John, N.B.	1 lb.	20	Wilfrid Fenwick, City Market, St. John, N.B.	Furnished to Fenwick from Goddard Bros., Albert Co., N.B.	3·51			Genuine.
" 20	"	29673	D. A. Vail, Broad St., Sussex, Kings Co., N.B.	1 "	20	Goddard Bros., Elgin, Albert Co., N.B.	Evaporated.	3·06			"
" 21	"	29674	George O. Stratton, Main St., Moncton, N.B.	1 "	32	J. H. Harris & Co., Moncton, Westmoreland Co., N.B.		2·82			"
" 27	"	29675	Moores Brothers, Roseberry St., Campbellton, N.B.	1 "	20	George W. Smith, Elgin, Albert Co., N.B.	1 lb. bar evaporated.	2·53			"
June 5	"	29676	James A. Bell, 313 Queen St., Fredericton, N.B.	1 "	20	Whinant Cliff, Queensbury & York Co., N.B.	Could not procure sugar in large block. Vendor stated these bars were from one boiling, panning and sugaring of sap and were uniform in quality.	4·19			"
DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.											
May 11	Maple Sugar.	26409	G. Forde & Co., Portneuf	2½ lb.	23	N. Marcotte, Portneuf.		4·94			Gnnuine.
" 11	"	26411	Roger Germain, Portneuf.	1½ "	12	Roger Germain, Portneuf.		5·56			"
" 12	"	26415	Emile Frenette, Portneuf.			Emile Frenette, cultivateur, Portneuf.		4·00			"

"	12	"	26416	Joseph Marcotte, Portneuf	3 lbs.	30	Arthéme Frenette, Portneuf.			2·56				"
"	12	"	26419	Joseph Boivin, Portneuf...	2 lbs. &14oz	23	Narcisse Marcotte, Portneuf.			4·71				"

DISTRICT ST. HYACINTHE J. C. ROULEAU, INSPECTOR.

May	11	Maple Sugar.	491	L. H. Paquin, Sorel.	1 pair.	10	Not known.			5·71				Genuine.
"	12	"	495	Nap. Quintin, Iberville...	2 lbs.	20	S. Clouthier, Iberville.			3·86				"
"	13	"	496	Chas. Boucher & fils, St. Jean.	2 "	20	M. Ménard, St. Paul, Abbottsford.	No marks		5·08				"
"	18	"	497	A. J. Hudon, Richmond...	1 "	8	G. T. Pope, Upper Melbourne.	"		2·44				"
"	22	"	498	J. B. St. Pierre, St. Hyacinthe, Que.	1 "	11	Mr. Masson, 1 range St. Rosalie.			4·69				"
"	22	"	499	R. O. Brodeur, St. Hyacinthe, Que.	31 oz.	23	S. Lafrenais, St. Judes.	Guaranteed to Mr. Brodeur by Mr. Lafrance		4·61				"

DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.

May	12	Maple Sugar.	32907	Sugars and Canners, Ltd., Parthenais St., Montreal.	2cakes	20	Vendor, Manufacturers ...	"Twin Block Brand" guaranteed pure. Card marked XXX place in each box of 20 for shipment.	0·82	0·30	0·23	Adulterated.
"	13	"	32908	Gunn, Langlois & Co., 241, St. Paul St., Montreal.	1 bl'ck	16	Patrick Redmond, St. Julien, Que.	Sold as pure	3·11			Genuine.
"	14	"	32909	J. A. N. Bourassa, Valleyfield, Que.	1 lb	10	J. Goodfellow, Huntingdon, Que.	" "	4·89			"
"	15	"	32910	W. C. Forget, St. Agathe de Monts, Que.	1 "	14	Maple Tree Producers Association, Ltd.		4·17			"
"	21	"	32911	R. Blain, Guilbault St., Montreal.	2cak's	20	Imperial Syrup Co., Montreal.	Put up in boxes 40 lbs. Stencilled, guaranteed Pure Beauce Maple Sugar.	2·84			"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Percentage on Dry Substances. Lead subacetate precipitate.	Total ash.	Malic acid value.	Remarks and Opinion of the Chief Analyst.
1908								p.c.	p. c.	p. c.	
DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.											
May 14	Maple Sugar.	34149	L. Malette, cor. Dalhousie and Murray Sts., Ottawa, Ont.	1 lb.	10	Sugars Limited, Montreal.	Sample from box marked "40 Twin Blocks Pure Maple Sugar. Twin Blocks Maple Sugar is guaranteed to be Pure Maple and nothing else sold as pure Maple Sugar.	2·49	.....	....	Genuine.
" 15	"	34150	J. Bambrick, By-Ward Market. Ottawa, Ont,	1 "	10	W. N. Farnam, Farnam's Corners, Que.	Sold as Pure Maple Sugar.	3·64	.....	....	"
" 16	"	34151	W. T. Ackland, cor. Bank and Lisgar Sts., Ottawa,	1 "	15	Not known.....	Sold as Pure Maple Sugar.	4·08	.....	....	"
" 18	"	34152	J. G. Whyte & Son, 60 Rideau Sts., Ottawa, Ont.	1 "	10	Sugars Limited, Montreal.	Sample from box marked "40 twin blocks Pure Maple Sugar. Twin Blocks Maple Sugar is Pure Maple and nothing else." Sold as Pure Maple Sugar.	0·28	0·18	0·14	Adulterated.
" 26	"	34153	Casselman Bros., Morrisburg, Ont.	1 "	20	W. B. Newsom, Plum Hollow, Ont.	Sold as Maple Sugar.	5·37	.....	....	Genuine.

DISTRICT OF KINGSTON—J. HOGAN, INSPECTOR.

May	11	Maple Sugar.	35205	Wm Davies & Co., Princess St., Kingston.	1	lb.	10	Maple Tree Co., Waterloo, Que.		4·66				Genuine.
"	11	"	35206	Wm Davies & Co., Princess St., Kingston.	1	"	10	Parkhill, Kingston.		7 33				"
"	11	"	35207	J. Kelley, Princess St., Kingston.	1	"	20	Sugars Ltd., Montreal.		0·90	0 36	0·25		Adulterated.
"	11	"	35208	W. H. Carnovsky, Brock St., Kingston.	1	"	10	Sugars and Canners, Montreal.		0·90	0 27	0·19		"
"	11	"	35209	James Redden, Princess St., Kingston.	1	"	18	George Young, Kingston.		3 57				Genuine.

DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.

May	11	Maple Sugar.	35109	J. W. Boyle, Dundas.	1	lb	10	Beauce Maple Sugar Imperial Syrup Co., Montreal.	Sample was taken from original box of manufacturer in window.	2 47				Genuine.
"	22	"	35110	K. Fraser, 323 King St. East, Hamilton.	1	cake.	10	Sugars & Canners Ltd., Montreal.	Sample taken from window with card on it advertising it as Pure Maple Sugar.	0 55	0 17	0·21		Adulterated.
"	26	"	35111	J. Duggan, 455-457 Young St., Toronto.	1	lb.	20	McWilliams & Everest, Com. Fruit Dealers, Toronto.	Vendor said he bought sample for Pure Maple Sugar.	1 13	0 26	0 13		"
"	26	"	35112	J. E. Legge, 817 College St., Toronto.	¾	"	10	F. W. Humphry, Wholesale Grocers, Toronto.	Sample from window with special price marked on a card.	3·91				Genuine.
"	27	"	35113	Patterson Bros., East Toronto.	1	"	20	Maple Tree Producers Assoc., Ltd., Waterloo, Quebec.	Sample taken from original box branded Pride of Canada Maple Sugar.	4 67				"

DISTRICT OF LONDON—T. KIDD, INSPECTOR.

May	12	Maple Sugar.	30900	McEwing Bros., Goderich.	2	lb.	20	Warren Bros & Co., Toronto.		3·53				Genuine.
"	14	"	30901	J. M. Adam, St. Mary's.	1	"	20	Imperial Syrup Co., Montreal.		3·64				"
"	16	"	30908	Chas Andrews, Seaforth	1	"	20	George Watts & Sons, Brantford.		4 49				"
"	27	"	30930	Mrs Grisdale, Wingham	½	"	10	James Turner & Co., Hamilton.		2·82				"
June	30	"	30938	Geo. McLennon, Clinton, Ont.	½	"	15	Maple Tree Producers Assoc., Waterloo, Que.		6·71				"

Date of Collection.	Nature of Sample.	Number of Sample.	Name and Address of vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the vendor.	Inspector's Report.	Results of Analysis. Percentage on Dry Substance. Lead sub-acetate precipitate.	Total ash.	Malic acid value.	Remarks and Opinion of the Chief Analyst.
1908								p. c.	p. c.	p. c	
DISTRICT OF WINDSOR—J. TALBOT, INSPECTOR.											
May 14	Maple Sugar..	34536	Swafford & Co., Sarnia....	2 lbs.	30	Imperial Syrup Co., Montreal.	Not labelled.....	4·22	.....	..	Genuine.
" 14	"	34533	W. C. Palmer, Sarnia	1 lb.	18	P. Sitter, Arkona.....	"	3·95	.....	.....	"
" 15	"	34537	Geo. Primmer, Petrolia....	3bl'ks.	30	Sugars & Canners Co., Montreal.	Furnished by M. Massarett & Co., London, and guaranteed to be pure.	0·30	0·20	0·16	Adulterated.
" 15	"	34538	C. R. Polley, Petrolia. ...	3 "	30	Imperial Syrup Co., Montreal.	Label on case marked absolutely pure. ...	3·41	.....	....	Genuine.
" 19	"	34549	A. Beattie & Co., Stratford.	1½ lbs.	23	Maple Tree Producers Assoc., Waterloo, Que.	Not labelled.	3·64	.....	...	"
" 19	"	34552	M. H. Killoran, Stratford.	1 lb.	20	Not known.....	"	5·19	.....	....	"
DISTRICT OF MANITOBA—A.-C. LARIVIERE, INSPECTOR.											
May 13	Maple Sugar..	33108	Hoffman & Son, grocers, Winnipeg.	1 lb.	25	Maple Tree Producers Assoc., Ltd., Waterloo, Que.	.....	4·71	.....	....	Genuine.
" 14	"	33109	Robinson & Co., grocers, Winnipeg.	1 "	25	Imperial Syrup Co., Montréal, Que.	.....	1·95	0·55	0·30	Doubtful.
" 14	"	33110	J. Paterson, grocer, Winnipeg.	1 "	25	Not given	.....	5·01	.....	..	Genuine.

"	14	Maple Sugar.	33111	Laurie Brothers, Grocers, Winnipeg.	1	lb.	20	Maple Tree Producers Assoc., Ltd., Waterloo, Que.		4·69				Genuine.
"	15	"	33112	J. D. Score, Grocer, Winnipeg.	1	"	15	T. W. Taylor, Cookshire, Que.		4·13				"

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

May	13	Pure Maple Sugar.	34255	F. Islander, Pender St., Vancouver.	1	lb.	25	Maple Tree Producers Association, Ltd., Waterloo, Que.		3·97				Genuine.
"	13	"	34256	J. F. May, 800 Pender St., Vancouver.	1	"	20	E. C. Lynch, Granby, Que.		3·42				"
"	13	"	34257	J. S. Foran, Carroll St., Vancouver.	1	"	20	D. McDougall, Martintown, Que.		6·22				"
"	13	"	34258	F. Wright, Granville St., Vancouver.	1	"	20	G. Blair, Franklin Centre, Que.		3·00				"
"	18	"	34259	S. Harcus, Cordova St., Vancouver.	1	"	15	Imperial Syrup Co., Montreal.	Furnished by Ramsay Bros & Co., Vancouver.	4·48				"

DISTRICT OF VICTORIA—D. O. SULLIVAN, INSPECTOR.

June	19	Maple Sugar.	34899	Acton Bros., Victoria, B. C.	1	lb.	20	Sugars and Canners, Ltd., Montreal.		2·44				Genuine.
"	22	"	34912	F. Carne, Victoria, B. C.	1	"	25	Canada Maple Exchange, Montreal.		3·24				"
"	23	"	34917	Victoria Rochdale Co-operative Assoc., Victoria, B.C.	1½	"	20	Sugars and Canners, Ltd., Montreal.		0·71	0·30	0·28		Adulterated.
"	23	"	34918	H. A. Lily, Victoria, B.C.	1	"	25		Stated by vendor to be pure; used for manufacturing purposes only.	6·64				Genuine.

APPENDIX II.

BULLETIN No. 158—PARIS GREEN.

OTTAWA, August 3, 1908.

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR:—I have the honour to hand you a report upon 150 samples of Paris Green, obtained throughout Canada in May of the present year.

With the single exception of No. 34285, purchased in Vancouver, B.C., these samples conform to the Adulteration Act. (Chap. 133, R. S. 1906.)

This article forms the subject of Bulletins 40, 42 and 88, published by this department; and the following table enables a comparison of results to be made:—

Bulletin.	Year.	Samples Examined.	Genuine.	Doubtful.	Adulterated.	Percentage of adult.
40	1895	72	52	5	15	21·0
42	1895	174	155	3	16	9·0
88	1903	169	162	3	4	2·4
158	1908	150	149	0	1	0·7

It is apparent that a great improvement in the quality of Paris Green, as offered for sale in Canada, has taken place during the last 13 years.

I beg to recommend that this report be printed as Bulletin 158.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

BULLETIN No. 158—PARIS GREEN.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Value.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Result of Analysis. Cupric oxide.	Result of Analysis. Arsenious acid.	Result of Analysis. Solubility in ammonia.	Remarks and opinion of the Chief Analyst.
DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.											
1868.					Cts.			p. c.	p. c.		
May 13	Paris Green.....	33665	National Drug and Chemical Co., Halifax, N.S.	1 lb..	32	Blundell, Spence & Co., London, Eng.	Labelled pure, put up in tin box.	32·91	53 78	Complete.....	Genuine.
" 13	"	33666	A. M. Bell & Co., Halifax, N.S.	1 " ..	33	" " ..	Labelled pure, put up in paper box.	32·91	57·25	Very slight residue	"
" 18	" ...	33667	S. L. Gross, Kentville, N.S.	1 " ..	30	Canada Paint Co., Montreal, Que.	Put up in round paper box, labelled pure.	31·14	54·64	Complete.....	"
" 18	" ..	33668	B. H. Dodge, Kentville, N.S.	1 " ..	30	Lewis, Berger & Sons, London, Eng.	Labelled guaranteed pure.	32·91	55·27	"	"
" 18	" ...	33669	T. P. Calkin & Co. Kentville, N.S.	1 " ..	30	Blundell, Spence & Co., London, Eng.	" " ..	32·80	55·69	Very slight residue	"
" 19	"	33670	L. W. Sleep, Wolfville, N.S.	1 " ..	35	" " ..	" " ..	32·36	55·90	Complete...	"
" 19	"	33671	T. L. Harvey, Wolfville, N.S.	1 " ..	30	" " ..	" " ..	32·80	53·21	"	"
" 19	"	33672	R. E. Harris & Son, Wolfville, N.S.	1 " ..	30	Lewis, Berger & Sons, London, Eng.	" " ..	31·36	51·81	"	"
" 20	" ...	33673	Dimock & Armstrong, Windsor, N.S.	1 " ..	35	" " ..	" " ..	32·58	54·57	"	"
" 21	"	33674	Truro Hardware Co., Truro, N.S.	1 " ..	30	Canadian Paint Co., Montreal, Que.	Labelled, warranted strictly pure.	32·25	54·36	"	"
DISTRICT OF PRINCE EDWARD ISLAND—T. MOORE, INSPECTOR.											
May 14	Paris Green.....	31246	Fennell & Chandler, Charlottetown.	1 lb..	30	Lewis, Berger & Son, London, Eng.	Guaranteed pure, Government standard.	32·58	55·06	Complete.....	Genuine.
" 15	"	31247	Carvell Bros., Charlottetown.	1 " ..	23	Canadian Paint Co., Montreal.	Warranted strictly pure.	32·02	54·71	"	"
" 19	"	31248	T. A. McDonald, Souris	1 " ..	25	A. Ramsay & Son. Montreal.	Pure Paris green.....	32·36	57·36	"	"

	19	"		31249	Sterns Bros., Souris West.	1 lb.	"	30	Lewis, Berger & Son, London, Eng.	Guaranteed pure, Government standard.	52·36	54	42	"		"
"	19	"		31250	Thos. Kickham, Souris West.	1 "	"	30	Glasgow Lead and Coal Works, Glasgow.	Warranted strictly pure.	31	36	54·78	"		"
"	20	"		31251	Peel & Thompson, Montague Bridge.	1 "	"	30	Lewis, Berger & Son, London, Eng.	Guaranteed pure.	32	25	56	33	"		"
"	21	"		31252	John Knight, Georgetown.	1 "	"	25	I. Barry, New York.	Strictly pure.	32	25	56	33	"		"
"	26	"		31253	Brace & McKay, Summerside.	1 "	"	29	Canadian Paint Co., Montreal.	Warranted strictly pure.	31	91	56	13	"		"
"	27	"		31254	James Kennedy, Kensington.	1 "	"	28	" "	" "	33	36	54	06	Very slight residue		"
"	28	"		31255	S. W. Crabb, Charlottetown.	1 "	"	30	Lewis, Berger & Son, London, Eng.	Guaranteed pure	32	58	57	04	Complete.		"

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.

May	14	Paris Green		29677	Robertson, Foster & Smith, Ltd., 77 Dock St., St. John, N.B.	1 lb.	"	30	The Canada Paint Co., Ltd., Montreal, Que.	Sample from package, labelled strictly pure Paris Green, guaranteed Government standard.	33	14	53·92	Very slight residue		Genuine.
"	14	"		29678	John Le Lacheur, 44 Germain St., St. John, N.B.	1 "	"	30	" "	Labelled warranted strictly pure Paris Green. Conforms to Government standard	32	80	56·67	Complete		"
"	21	"		29679	The Sussex Mercantile Co., Ltd., Sussex, King's Co., N.B.	1 "	"	35	Blundell, Spence & Co., Ltd., Hull & London.	Package marked 1 lb. pure Paris Green, guaranteed pure. Conformable to Government standard.	33	58	54	19	"		"
"	22	"		29680	Sumner & Co., Main St., Moncton, N.B.	1 "	"	30	The Canada Paint Co., Ltd., Montreal, P.Q.		31	91	53	15	"		"
"	23	"		29681	John Ferguson, Public Square, Newcastle, N.B.	1 "	"	35	Lewis Berger & Sons, Ltd, London, England.	Labelled pure Paris Green, guaranteed pure. Government standard	32·69		56	12	"		"
"	26	"		29682	W. J. Kent & Co., Ltd., Main St., Bathurst, N.B.	1 "	"	35	Blundell, Spence & Co., Ltd., Hull & London.	Labelled pure Paris Green, guaranteed pure. Conformable to Government standard.	31	80	55·06	Very slight residue		"
"	7	"		29683	W. H. Marquis & Co., Campbellton, N.B.	1 "	"	35	The Canada Paint Co., Ltd., Montreal.	Warranted strictly pure Paris Green. Conforms to Canadian Government standard.	31	58	54	92	Complete.		"

14—8½

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Value.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Result of Analysis. Cuprie oxide.	Result of Analysis. Arsenious acid.	Result of Analysis. Solubility in ammonia.	Remarks and opinion of the Chief Analyst.
DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR—*Concluded.*											
1908.					Cts.			p. c.	p. c.		
June 4	Paris Green. ..	29684	The De Wolf Hardware Co., Ltd., cor. King & Huron Sts., St. Stephen, N.B.	1 " ..	35	The Canada Paint Co., Ltd., Montreal.	Warranted strictly pure Paris Green.	31·91	55·13	Very slight residue	Genuine.
" 8	"	29685	W. F. Dibblee & Son, Main St., Woodstock, N.B.	1 " ..	30	Lewis, Berger & Sons, Lt., London, England.	Labelled pure Paris Green, guaranteed pure. Government standard.	32·91	55·27	Complete..	"
" 9	"	29686	James E. Porter & Son, Andover, Victoria Co., N.B.	1 " ..	35	The Canada Paint Co., Ltd., Montreal, Que.	.....	32·02	55·20	"	"
DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.											
May 11	Paris Green....	26410	G. Fords & Co., Portneuf.	1 lb..	35	Lewis Bros., Montreal.	.....	32 58	55·55	Very slight residue	Genuine.
" 12	"	26421	Joseph Boivin, Portneuf.	1 " ..	32	Herman Young, Quebec.	.....	31·69	56·97	Complete..	"
" 13	"	26428	Elzéar Gerard, Cap Santé.	1 " .	25	W. Doyle, Quebec.	.....	31·91	55·31	Very slight residue	"
" 13	"	26431	F. X. Paquet, Cap Santé.	1 " ..	32	G. M. Noël, Quebec.	.....	32 13	54·78	Complete.....	"
" 13	" ...	26435	A. Bernard, Cap Santé.	1 " ..	35	W. Doyl, Quebec..	.....	32·02	56·69	"	"
" 15	" .	26451	D. Belanger, St. Basile.	1 " ..	30	Lewis Bros., Montreal.	.....	32·80	54·70	"	"
" 15	"	26459	F. N. Gauthier, St. Basile.	1 " ..	35	Chimic & Methot, Quebec.	.....	31·80	55·56	"	"
" 16	"	26461	Orphe Godin, St. Christine.	1 " ..	35	David Modore, Montreal.	.....	33·02	55·82	"	"

"	16	"	...	26162	Bertrand Giroux, St. Gilbert.	1 "	30	Noel Lemieux, Quebec.		31·80	56·05	"		Genuine.
"	27	"	....	26471	Appolinaire Drouin, St. Elzear, Beauce.	1 "	18	Joseph Guay, St. Elzear, Beauce.		53·14	52·93	Very slight residue		"

DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.

May	11	Paris Green.		101	C. Labelle & Cie, Sorel.	1½ lb.	53	Blundell, Spence & Co., Ltd., Hull & London.		32·13	55·77	Complete		Genuine.
"	11	"		102	Shooner & Cie, Berville.	1 box.	30	The Canada Paint Co., Montreal.	Box marked "warranted strictly pure" for potato bugs.	32·80	56·18	"		"
"	12	"		103	O. Desmarais & Cie, St. Frs. du Lac.	1 "	30	" "		32·13	56·76	"		"
"	11	"		104	W. A. Horner, Granby.	1 lb.	40	Blundell, Spence & Co., Ltd.		32·58	58·03	Very slight residue		"
"	14	"		105	F. X. Giroux, Farnham.	1 "	25	The Canada Paint Co.		32·47	57·96	Complete		"
"	18	"		106	J. Bedard & Fils, Richmond.	1 "	40	Lewis, Berger & Sons, Ltd., London.		32·69	53·64	"		"
"	18	"		107	C. O. Genest & Fils, Sherbrooke.	1 "	30	The Canada Paint Co.		32·58	54·57	"		"
"	20	"	...	108	W. C. Webster & Sons, Cookshire.	1 "	35	Blundell, Spence & Co., Ltd.		32·91	57·25	"		"
"	21	"	..	109	V. Phaneuf, St. Madeleine.	1 "	35	Not known.	In 25 lb. canister and put up in 1 lb. packets by the vendor.	32·58	54·07	"		"
"	22	"		110	A. Lariviere, St. Hyacinthe.	1 "	30	Blundell, Spence & Co., Ltd.		33·47	55·12	Very slight residue		"

DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.

May	14	Paris Green, ..		32912	N. Langevin, Valleyfield, P.Q.	1 lb.	40	Canada Paint Co.	In 1 lb. pkts. Labelled warranted strictly pure Paris Green.	31·91	57·61	Complete		Genuine.
"	15	"	..	32913	O. St. Amour, Druggist, St. Agathe des Monts.	1 "	50	Louis, Berger & Sons, Ltd.	Guaranteed pure Government standard.	32·91	57·74	"		"
"	16	"	..	32914	A. Ramsay & Son, Co., Inspector St., Montreal.	1 "	30	Vendor.	Put up in 1 lb. pkts. Labelled pure Paris Green.	31·80	54·08	"		"
"	16	"	..	32915	Dr. Leduc Drug Co. Notre Dame St., E.	1 "	35		Taken from bulk. Sold as pure.	33·36	57·53	"		"
"	16	"		32916	The E. Cavanagh Co., Notre Dame St., E.	1 "	35		" "	32·69	56·61	"		"

BULLETIN No. 158—PARIS GREEN.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Value.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Result of Analysis. Cupric oxide.	Result of Analysis. Arsenious acid.	Result of Analysis. Solubility in ammonia.	Remarks and opinions of the Chief Analyst.
DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR—*Concluded.*											
1908.					Cts.			p.c.	p.c.		
May 21	Paris Green.....	32917	J. L. E. Guimond, Beauharnois, P.Q.	1 lb..	35	Lewis, Berger & Sons, Ltd.	Labelled pure.....	33·02	54·84	Complete.....	Genuine.
June 1	"	32918	J. A. Coulombe, Berthierville.	1 " ..	28	....	Taken from a drum. Labelled pure Paris Green.	32·70	56·72	"	"
" 10	"	32919	Dupuy Ferguson, Jacques Cartier Sq., Montreal.	1 " ..	35	Blundell, Spence & Co., Ltd., Hull and London.	Labelled pure Paris Green,	33·14	55·41	"	"
" 11	"	32920	Carpenter Bros., Lachute P.Q.	1 " ..	35	Canada Paint Co., Ltd.	Labelled strictly pure..	31·91	54·15	"	"
" 11	"	32921	W. Banford & Sons, Lachute, P.Q.	1 " ..	35	Lewis, Berger & Sons, Ltd.	Labelled pure Paris Green.	31·25	52·24	"	"
DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.											
May 21	Paris Green.....	34154	Dunlop & Company, Pembroke, Ont.	1 lb..	35	The Canada Paint Co., Ltd., Toronto, Ont.	Box labelled, warrant'd strictly pure Paris green, conforms to Canadian Govt. standard, sold as pure Paris green.	32·80	56·18	Complete..... ...	Genuine.
" 21	"	34155	Mackie & Ryan, Pembroke, Ont.	1 " ..	35	" " ..	" " ..	32·69	56·12	"	"
" 23	"	34156	D. Doyle, Hawkesbury, Ont.	1 " ..	40	Lewis Berger & Sons. Ltd., London, Eng.	Labelled pure Paris green, guaranteed, Govt. standard, sold as pure Paris green.	32·69	56·12	"	"
" 23	"	34157	R. H. Bradfield & Co., Morrisburg, Ont.	1 " ..	35	A. Ramsay & Son, Montreal, Que.	Labelled pure Paris Green, A. Ramsay & Son, Montreal, sold as pure Paris green.	32·36	54·42	"	"

"	26	"	...	34158	R. H. Smart, Brockville, Ont.	1	"	..	35	Blundell, Spence & Co., Hull and London.	Labelled pure Paris green, guaranteed pure, conforms to Govt. standard, sold as pure Paris green.	33	14	55	41	Complete.....	Genuine.
"	28	"	..	34159	Clark & Lewis, Smith's Falls, Ont.	1	"	.	40	Canada Paint Co., Montreal, Que.	Sample from 1st paper parcel, labelled pure Paris green, put up by Clark & Lewis, Smith's Falls, Ont.	32	36	56	89	"	"
June	6	"	....	34160	Thos. Shore, 115 Rideau St., Ottawa.	1	"	..	30	Blundell, Spence & Co., London, Eng.	Labelled 1st Paris green, guaranted pure, conformable to Govmt. standard, sold as pure Paris green.	32	58	55	06	"	"
"	16	"	..	34161	W. G. Charleson, 79, 81, 83 Rideau St., Ottawa, Ont.	1	"	..	32	" " ..	" " ..	33	29	57	94	Very slight residue	"
"	16	"	..	34162	A. Workman & Co., 301 Wellington St., Ottawa, Ont.	1	"	..	32	Lewis Berger & Sons, London, Eng.	" " .	31	14	51	67	Complete..	"
"	16	"	..	34163	Beatie & Argue, 282 Wellington St., Ottawa, Ont.	1	"	..	32	" " ..	" "	32	36	55	40	"	"

DISTRICT OF KINGSTON—J. HOGAN, INSPECTOR.

May	11	Paris Green.....		35212	A. Chown & Son, Baget St., Kingston, Ont.	1	lb..		35	Canada Paint Co., Ltd., Montreal, Que.	. ...	31	25	54	22	Very slight residue	Genuine.
"	11	"	....	35213	H. Skinner Co., Princess St., Kingston.	1	"	..	30	Lewis Berger & Sons, London, Eng.	... .	32	36	55	90	Complete.....	"
"	11	"	....	35214	W. B. Dalton & Sons, Princess St., Kingston, Ont.	1	"	..	35	Canada Paint Co., Ltd., Montreal, Que.	... .	33	47	56	10	"	"
"	12	"	...	35215	The W. W. Chown, Front St., Belleville.	1	"	..	30	Lewis Berger & Sons, London, Eng.	....	32	58	55	55	"	"
"	12	"	..	35216	Hanson Hardware Co., Front St., Belleville,	1	"	..	35	Blundell, Spence & Co., Ltd, London, Eng.	... .	32	58	55	06	"	"
"	12	"	...	35217	F. C. Clarke, Belleville, Ont.	1	"		35	Canada Paint Co., Montreal, Que.	. ...	32	91	57	25	"	"
"	12	"	...	35218	J. W. Walker, Belleville, Ont.	1	"	..	30	Lewis Berger & Sons, London, Eng.	....	33	36	57	53	"	"
"	12	"	...	35219	L. E. Nix, Brighton, Ont.	1	"		35	" " ..	....	33	36	54	06	"	"
"	14	"	.	35220	W. L. Allen, King St., Cobourg, Ont.	1	"		35	" " ..	.....	33	14	55	41	"	"
"	14	"	..	35221	T. Barfett Bros., King St., Cobourg, Ont.	1	"		35	Blundell & Spence.	....	33	80	51	33	"	"

BULLETIN No. 158—PARIS GREEN.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Value.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Result of Analysis. Cupric oxide.	Result of Analysis. Arsenious acid.	Result of Analysis. Solubility in ammonia.	Remarks and opinion of the Chief Analyst.
			DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.								
1908.					Cts.			p.c.	p.c.		
May 11	Paris Green.....	35089	B. W. Donnelly, Anlcaster.	1 lb...	35	Sherwin Williams, Montreal.	.....	32·25	57·82	Complete.....	Genuine.
" 12	" ...	35090	Ropers Drug Store, Dr. J. M. Forbes, Prop., Caledonia.	1 " ..	35	" " ..	....	32·13	37·25	"	"
" 12	"	35091	Jas. Shuldrick, Hagersville.	1 " ..	40	Canada Paint Co., Montreal.	Sample labelled. Warranted strictly pure Paris green.	31·69	54·01	"	"
" 13	"	35092	Moote & Son, Dunville	1 " ..	30	" " ..	"	32·36	55·40	"	"
" 14	"	35 93	W. J. Quinsey, Cayuga	1 " .	35	Vendor thinks it was supplied from J. Winer & Co., Hamilton	Sample from original package from bulk.	32·80	56·67	"	"
" 19	" ...	35094	R. A. Land, Bridgeburg	1 " ..	25	J. Winer & Co., Hamilton.	From bulk.....	31·46	56·82	"	"
" 21	" ...	35095	P. H. Gamble, Grimsby.	1 " ..	40	Canada Paint Co., Ltd. Toronto & Montreal.	Supplied by Hobbs' Hardware Co., London. Warranted strictly pure Paris green.	32·02	55·70	"	"
" 23	"	35096	H. E. Moore, Oakville	1 " ..	30	" " ..	Sample supplied by Rice Lewis & Sons, Ltd., Toronto, taken from bulk.	32·36	54·91	"	"
" 27	"	35097	L. A. De Laplante, East Toronto.	1 " ..	30	Sherwin Williams Co., Toronto & Montreal.	Vendor said it was Berger's green.	32·80	56·18	"	"
" 27	"	35098	Fred. Murch, East Toronto.	1 " ..	30	Lyman Bros. & Co., Ltd., Toronto.	Sample from small paper bag.	32·91	54·78	"	"

DISTRICT OF LONDON—T. KIDD, INSPECTOR.

May	12	Paris Green.	30495	H. C. Dunlop, Druggist, Goderich.	1	lb.	35	Winer & Co., Hamilton		32·25	57·42	Complete	Genuine.
"	12	"	30496	Chas. Lee, Hardware Merchant, Goderich.	1	"	35	Sherwin Williams & Co., Cleveland, Ohio		32·58	58 03	Very slight residue	"
"	14	"	30905	Frank H. Smith, Druggist, St. Mary's.	1	"	40	Canada Paint Co., Toronto.		32·47	55 98	Complete.	"
"	16	"	30911	Chesnee & Archibald, Seaforth.	1	"	40	Sherwin Williams Co., Montreal.		33·36	54 56	Very slight residue	"
"	16	"	30912	Reid & Wilson, Seaforth.	1	"	35	Canada Paint Co., Toronto.		32·47	56·47	Complete	"
"	18	"	30913	Peter Dill, Dublin	1	"	40	Hobbs' Hardware Co., London, Ont.		32·25	55 84	"	"
"	20	"	30923	J. J. Doyle, Druggist, Stratford.	1	"	35	Not known.		32·69	56 12	"	"
"	20	"	30924	McCurdy Bros., Stratford.	1	"	25	Not known.		32 02	57 18	"	"
"	27	"	30928	McPherson Bros., Blythe.	1	"	35	Sherwin Williams Co., Montreal.		32 13	58 24	"	"
"	27	"	30932	J. D. Burns, Wingham	½	"	20	Canada Paint Co., Montreal.		32 47	55 48	Very slight residue	"

DISTRICT OF WINDSOR—J. TALBOT, INSPECTOR.

May	11	Paris Green.	34535	MacKenzie, Melvie & Co., Sarnia.	1	lb	25	Lewis Berger & Sons, London, Eng.	Labelled guaranteed pure, Govt. standard	32 35	53 36	Very slight residue	Genuine.
"	14	"	34536	Geo. G. Ingersoll, Sarnia.	1	"	35	Lyman Bros. & Co., Toronto.	No label on can	31 58	56 90	Complete	"
"	14	"	34543	W. H. Dale, Petrolia	1	"	35	Berger & Sons, London, Eng.	Guaranteed pure	32 80	54 70	"	"
"	18	"	34548	O. Ritz, Berlin	1	"	35	Canada Paint Co., Toronto.	Not labelled	32 25	53 36	"	
June	9	"	34556	J. A. Wallace, Brantford.	1½	"	51	Not known.	In stock long time	31 14	55 63	"	"
"	9	"	34560	M. H. Robertson, Brantford.	1½	"	50	Berger & Sons, London, Eng.	Guaranteed pure	31 80	55 06	"	"
"	10	"	34561	Jas. Holmes, Wood stock.	1½	"	60	" "	" "	32 13	56·26	"	"
"	10	"	34568	Patrick Bros., Woodstock.	1½	"	55	Toronto Lead & Colour Co.	Warranted strictly pure, no label.	32 02	56 19	"	"
"	10	"	34569	T. N. Dunn, Ingersoll	1	"	40	Canada Paint Co., Toronto.	Warranted to be pure and up to Government standard.	32 25	58·84	"	"
"	25	"	34575	E. Richards & Co., Aylmer.	1½	"	60	National Drug Co., London.	No label	33 80	56 31	"	"

BULLETIN No. 158—PARIS GREEN.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Value.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Result of Analysis. Cupric oxide.	Arsenious acid.	Solubility in ammonia.	Remarks and opinion of the Chief Analyst.
DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.											
1908.					Cts.			p.c.	p.c.		
May 19	Paris Green.....	33113	The Speer Stevenson Drug Co., Minnedosa	1 lb.	25	Not given	.....	32·58	55·06	Complete	Genuine.
" 19	"	33114	R. T. Butehart, Druggist, Minnedosa.	1 "	20	"	.....	32·02	56·69	"	"
" 20	"	33115	Mair & Burton, Hardware, Minnedosa.	1 lb tin	65	The Canada Paint Co., Ltd., Montreal, Toronto and Winnipeg.	Paris green for potato bugs, strictly pure. Poison.	31·46	55·35	"	"
" 21	"	33116	W. T. Lang, Druggist, Norwood Grove, P.O. St. Boniface.	1½ lb.	65	Blundell, Spence & Co., Ltd., Hull & London.	Labelled pure Paris green.	32·47	55·98	"	"
" 21	"	33117	Whiting Hardware Co., Norwood Grove, P.O. St. Boniface.	1 "	40	Lewis Berger & Sons, London, England.	" "	31·14	54·64	"	"
" 21	"	33118	Poyntz & Co., Druggists, Winnipeg.	1 "	40	" "	" "	32·58	55·55	"	"
" 22	"	33119	J. R. Clements, Main St. North, Winnipeg.	1 "	35	The Canada Paint Co., Ltd., Montreal, Toronto and Winnipeg.	Strictly pure Paris green.	32·58	58·03	"	"
" 22	"	33120	Neil H. Lightly Co., Hardware, Winnipeg	1 "	35	" "	Put up in paper box...	32·13	57·75	"	"
" 27	"	33121	W. H. G. Gibbs, Druggist, West Selkirk.	1 "	40	The Canada Paint Co., Ltd.	Strictly pure Paris green.	31·46	56·33	Very slight residue	"
" 28	"	33122	G. M. Brown, Hardware, Stonewall.	1 "	50	" "	" "	32·13	56·76	Complete	"
DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.											
June 22	Paris Green.....	28920	Bole Drug Co., Calgary.	1 lb ..	40	Unknown	.....	31·80	55·56	Complete.....	Genuine.
" 22	"	28921	Oliver Bros., Calgary..	1 " ..	30	"	.....	32·13	56·76	"	

"	23	"	28922	Curry & Cope, Calgary.	1	"	30	"			31·36	56·76	"			
"	24	"	28923	C. A. Wallace, Calgary.	1	"	60	"			32·80	56·67	"			
"	24	"	28924	Jas. Findlay Drug Co., Ltd., Calgary.	1	"	40	Lewis, Berger & Sons, Ltd., London, Eng.			33·36	57·03	Very slight residue		"	
"	24	"	28925	O. H. Bott, Calgary	1	"	75	Unknown			33 14	57·98	Complete			
"	24	"	28926	M. Maclean, Calgary	1	"	50	"			32·80	56 18	"		"	
"	26	"	28927	C. S. Pringle, Medicine Hat.	1	"	50	J. Winer & Co., Hamilton.			33 14	55 90	Very slight residue		"	
"	27	"	28928	Higinbotham & Co., Lethbridge.	1	"	49	Canada Paint Co., Montreal.			33 24	56 95	Complete			
"	29	"	28958	J. H. Walker, Wetaskiwin.	1	"	50	Lewis, Berger & Sons, Ltd., London, Eng.			33 58	58·65	"		"	

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

May	14	Paris Green	34285	O'Neil & Netherby, Vancouver.	1	"	50	National Drug Co., Vancouver.	Sold as genuine		21 75	35·15	Incomplete		Adulterated. Barytes, 26 87; acetic anhydride, 6·75.	
"	14	"	34286	Mount Pleasant Pharmacy.	1	"	40	Henderson Bros., Vancouver.	"		33 14	56·41	Complete		Genuine.	
"	14	"	34287	Independent Drug Store.	1	"	35	Not known			32·02	54·22	"		"	
"	15	"	34288	D. S. Curtis, New Westminster.	1	"	75	A. M. Ansbacher & Co., New York.	Guaranteed pure		31 91	54 64	"		"	
"	15	"	34289	H. Ryall, New Westminster.	1	"	50	Henderson Bros., Vancouver.	Sold as genuine		32·36	54·42	Very slight residue		"	
"	15	"	34290	T. A. Muir & Co., New Westminster.	1	"	40	"	"		31 80	53 08	Complete		"	
"	16	"	34291	Central Drug Store, Vancouver.	1	"	50	Not known			32·25	55·34	"		"	
"	16	"	34292	C. Muddell, Vancouver.	1	"	50	Henderson Bros., Vancouver.	Sold as genuine		33 14	51 45	Very slight residue		"	
"	16	"	34293	McDowell, Atkins & Watson, Hastings St. & Westminster Ave., Vancouver.	1	"	20	"	"		32 80	55 19	Complete		"	
"	16	"	34294	Law's Drug Store, Vancouver.	1	"	35	"	"		32·02	56 69	Very slight residue		"	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Result of Analysis.			Remarks and opinion of the Chief Analyst.
				Quantity.	Value.			Cupric oxide.	Arsenious acid.	Solubility in ammonia.	
DISTRICT OF VICTORIA—D. O'SULLIVAN, INSPECTOR.											
1908.					Cts.			p. c.	p. c.		
June 23	Paris Green	34920	Hall & Co., Victoria, B.C.	1 lb	50	Henderson Bros., Victoria, B.C.		33·36	56·04	Complete	Genuine.
" 23	"	34921	D. E. Campbell, Victoria, B.C.	1 "	50	P. McQuade & Sons, Victoria, B.C.		32·13	56·76	"	"
" 24	"	34922	W. Jackson & Co., Victoria.	1 "	50	Henderson Bros., Victoria, B.C.		33·14	56·89	"	"
" 24	"	34923	Dean & Hiscocks, Victoria.	¾ "	30	J. Weiner, Toronto, Ont.		32·25	56·83	"	"
" 24	"	34924	Geo. Morison & Co., Victoria, B.C.	1 "	75	Canada Paint Co., Montreal.		31·58	55·42	"	"
" 24	"	34925	Cyrus H. Bowes, Victoria, B.C.	1 "	75	Lyman & Sons, Montreal.		31·91	54·64	Very slight residue	"
" 24	"	34926	Thos. Shotbolt, Victoria, B.C.	1 "	75	Canada Paint Co., Montreal, P.Q.		32·80	56·18	"	"
" 24	"	34927	B. C. Drug Co., Victoria, B.C.	1 "	50	F. J. Barry, New York.		31·91	56·62	Complete	"
" 24	"	34928	G. A. Fraser, Victoria, B.C.	1 "	65	Henderson Bros., Victoria, B.C.		31·80	56·05	"	"
" 24	"	34929	Terry & Merett, Victoria, B.C.	1 "	65	" "		31·80	56·05	Very slight residue	"

APPENDIX I.

BULLETIN No. 159—OLIVE OIL.

OTTAWA, August 4, 1908.

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR,—I beg to hand you a report upon 82 samples of Olive Oil, collected by our inspectors throughout Canada, in May last.

Their examination in this laboratory results in the following classification :—

Genuine	64	samples.
Adulterated	15	"
Sold as Salad Oil, without the use of the word "Olive"	3	"
Total	82	"

It is to be noted that several of the samples classed as adulterated are described as "ordinary Olive Oil," "Huile d'Olive" or "Olive Salad Oil." These names involve the use of the word "Olive," and cannot be regarded as justifying the sale of an article which is not Olive Oil.

Olive Oil has been made the subject of inspection on three different occasions, including the present; and the results of previous inspections will be found in Bulletins 67 and 111 of this department. The following synopsis is of interest :—

Bulletin.	Year.	Total Samples.	Genuine.	Doubtful.	Adulterated.	Per Cent Adulterated.
67	1899	75	40	5	30	40·0
111	1905	108	66	26	16	14·8
159	1908	82	64	3	15	18·3

It is to be noted that under the heading "doubtful" I have included such samples as are sold as "Salad Oil," without the use of the word "Olive."

I beg to recommend that this report be published as Bulletin No. 159.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

BULLETIN No. 159—OLIVE OIL.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Refractive index at 15·5° C.	Iodine number.	Nitric acid colour test	Halphen's colour test	Remarks and opinion of the Chief Analyst.
DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.												
1908.								p. c.				
May 12	Olive Oil	33630	J. McD. Taylor, Halifax, N.S.	10 oz.	35	Nat. Drug & Chemical Co., Halifax, N.S.	Sample taken from bottle in stock.	1·4701	....	Green.	No colour	Genuine.
" 12	" ..	33631	J. L. Archibald & Son, Halifax, N.S.	10 "	40	A. Jonas, Honart, France.	.....	1·4702	....	" ..	" ..	"
" 13	" ..	33632	Nat. Drug & Chemical Co., Halifax, N.S.	12 "	40	Unknown	Sold as pure.....	1·4700	....	" ..	" ..	"
" 18	" ..	33633	Geo. McDougall, Kentville, N.S.	12 "	40	Nat. Drug & Chemical Co., Halifax, N.S.	Sample from gall. can in stock.	1·4698	....	" ..	" ..	"
" 20	"	33634	H. S. Wilson, Windsor, N.S.	10 "	30	H. Rene, France.....	Supplied to Vendor by Lyman & Sons, Montreal, Que.	1·4708	...	" ..	" ..	"
DISTRICT OF PRINCE EDWARD ISLAND—T. MOORE, INSPECTOR.												
May 18	Olive Oil	31256	Sanderson & Co., Charlottetown.	10 oz.	45	Crosse & Blackwell, London.	Pure Lucca Oil, guaranteed genuine olive oil.	1·4702	....	Green.	No colour.	Genuine.
" 19	"	31257	Mathew McLean, Souris.	10 "	30	E. S. Weaton & Co., Amherst, N.S.	Finest quality pure olive oil.	1·4692	....	Yellow.	" ..	"
" 20	"	31258	Ellis Pharmacy, Montague.	12 "	50	Canada Drug Co., St. John, N.B.	.....	1·4740	111	Brown.	Red....	Adulterated.
" 27	"	31259	Jardine & Bernard, Kensington.	10 "	30	Dr. Scotts White Liniment Co., St. John, N.B.	.. ..	1·4694	....	Green..	No colour.	Genuine.
" 27	"	31260	R. Tuplin & Co., Kensington.	10 "	15	Imperial Oil Co., Halifax.	....	1·4708	....	" ..	" ..	"

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.

May	12	Olive Oil	29687	Charles R. Wasson, King St., St. John, N.B.	100	3 bots.	60	Warrick Frères, Grasse, France.	Sample from 1 gall. can. "Bulk" in can Warrick Frères, Grasse, France.	1	4700		Green	No colour.	Genuine.
"	21	"	29688	Fairweather Bros., Main St., Moncton, N.B.	10	oz.	30	Nat. Drug Co., Ltd., St. John, N.B.	Guaranteed absolutely pure. Imported by the Nat. Drug & Chem. Co. of Canada, Ltd.	1	4703		"	"	"
"	26	"	29689	A. Chipman, Smith & Co., Water St., Bathurst, N.B.	10	"	25	Augte Gaillard & fils, Marseilles, France.	From 1 gall. can, labelled Olive Oil, Sublime, Extra. Guaranteed to contain 1 full gallon of pure oil.	1	4700		"	"	"
June	1	"	29690	Johnston & Johnston, King St., St. Stephen, N.B.	10	"	25	Warrick Frères, Grasse, France.	Labelled veritable huile d'Olive, Surfine. Furnished to Vendors by Polson & Co., Kingston, Ont.	1	4703		"	"	"
"	6	"	29691	George T. Dibblee, cor. Queen & York Sts., Fredericton, N.B.	10	"	40	"	From stock bottle, filled from gall. can, labelled Huile d'Olive Surfine.	1	4710		"	"	"

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

May	12	Olive Oil(Virgin)	26417	Joseph Marcotte, Portneuf.	3	bots.	30	W. Brunette & Cie., Quebec.		1	4738	103	Brown.	Red	Adulterated.
"	12	Salad Oil(Salad).	26422	Joseph Boivin, Portneuf.	3	"	30	N. Rioux & Cie., Quebec.		1	4739	111	"	"	Cotton seed oil.
"	14	Olive Salad Oil	26439	Nap. Pleau, St. Basile.	3	"	30	" "		1	4738	116	"	"	Adulterated.
"	14	Virgin Olive Oil.	26442	Chas. Latulippe, St. Basile Station.	3	"	30	Honore Blouin, Quebec.		1	4740	111	"	"	"
"	14	Virgin Olive Oil.	26449	Adjutor Thibadeau, St. Basile.	3	bots.	30	Leclerc & Latellier, Quebec.		1	4738	109	Brown.	Red	Adulterated.
"	15	Best Olive Oil	26450	Eli Hardy, St. Basile.	1	pt	30	T. E. Livernois, Quebec.		1	4708		Green	No colour.	Genuine.
"	15	Salad Oil	26453	Ludger Matte, St. Basile.	3	bots.	30	W. Brunette & Co., Quebec.		1	4740	111	Brown.	Red.	Cotton Seed Oil
"	15	Pure Olive Oil	26456	J. T. Marcotte, St. Basile.	1	qt.	75	Leclerc & Latellier, Quebec.		1	4738	111	"	"	Adulterated.
"	15	Salad Olive Oil	26458	F. N. Gauthier, St. Basile.	3	bots.	30	Joseph & Son, Quebec.		1	4738	113	"	"	"
"	14	Virgin Olive Oil.	26445	Edmond Germain, St. Basile.	3	"	30	N. Turcotte & Co., Quebec.		1	4739	109	"	"	"
"	14	Salad Olive Oil.	26446	" "	3	"	30	" "		1	4738	114	"	"	"

BULLETIN No. 159—OLIVE OIL.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Refractive index at 15·5° C.	Iodine number.	Nitric acid colour test	Halphen's colour test	Remarks and opinion of the Chief Analyst.
DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.												
1908.												
May 11	Olive Oil	112	J. O. Fagnan, Sorel	1 canister	50	Adolphe Puget, Marseilles.	Huile Extra. Qualité Superieure.	1·4708		Green	No color	Genuine.
" 12	Salad Oil	113	O. Desmarais & Cie. St. Frs. du Lac.	3 bots.	27		Huile à Salade, extra.	1·4740	116	Brown	Red	Cotton Seed Oil
" 13	Olive Oil	114	J. P. Bertrand, Iberville.	1 pt.	45	G. Devilliers, Iberville.		1·4702		Green	No color	Genuine.
" 18	"	115	Tobin Store Co., Bromptonville.	3 bots.	30	E. Lonbon, Nice		1·4742	82	Brown	Red	Adulterated.
" 20	"	116	Ed. Lacroix, Coaticook	3 "	24	Frazier Thornton & Co., Cookshire, Quebec.	Labelled Huile d'Olive Française.	1·4738	110	"	"	"
DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.												
May 22	Olive Oil	32922	A. Kouri, 31 Bousecours St., Montreal.	1 tin.	45		Imported expressly for the Vendor. Sold as Pure Lucca Olive Oil.	1·4704		Green	No color	Genuine.
" 29	"	32923	Raymond Freres, 259 St. Lawrence St., Montreal.	1 pt.	30	Imported	Bottles labelled by Vendor. Huile d'Olive Surfine.	1·4706		"	"	"
" 29	"	32924	" "	1 "	18	"	Bottles labelled by Vendor. Huile d'Olive de Cuisine.	1·4740	107	Brown	Red	Adulterated.
" 29	"	32925	A. E. Sennat, 188 Dorchester W., Montreal.	1 bot.	50	J. B. & A. Artand frére Marseilles.	Labelled Surfine. Clarifiée.	1·4710		Green	No color	Genuine.
" 29	"	32926	D. Masson & Co., St. Paul St., Montreal.	1 "	50	Adolphe Puget, Marseilles.	"	1·4703		"	"	"

DISTRICT OF OTTAWA J. A. RICKEY, INSPECTOR.

May	20	Olive Oil..	34164	A. L. Pinard & Sons, 98 Rideau St. Ottawa	1 bot..	85	Hudon, Herbert & Co., Montreal.	Bot. marked Huile d'Olive Surfine Clarifiee. Sold as Pure Olive Oil.	1·4702	Green...	No colour.	Genuine.
"	20	"	34165	Calderone & Bossio, 215 Bank St., Ottawa.	10 oz..	30	A. Calderone, Italy...	Labelled Pure Italian Olive Oil. Imported and sold by Calderone & Bossio. Sold as Pure Olive Oil.	1·4698	"	"	"
"	21	"	34166	W. T. C. Bethel, Pembroke, Ont.	10 "	40	Drug Trading Co., Toronto, Ont.	Sold as Pure Olive Oil.	1·4702	"	"	"
"	23	"	34167	Montgomery & McGibbon, Hawkesbury, Ont.	10 "	35	Nat. Drug & Chem. Co., Ottawa.	" "	1·4703	"	"	"
"	26	"	34168	F. B. Carman, Morrisburg, Ont.	10 "	45	Lyman, Sons & Co., Montreal.	Sample from tin marked Huile d'Olive Vierge Clarifiee. Sold as Pure Olive Oil.	1·4697	"	"	"

DISTRICT OF KINGSTON J. HOGAN, INSPECTOR.

May	11	Olive Oil.....	35222	H. Skinner Co., Princess St., Kingston.	3 Bots	50	Nat. Drug & Chemical Co.		1·4705	Green	No colour.	Genuine.
"	11	"	35223	A. P. Chown, Princess St., Kingston.	3 "	60		Huile d'olive Marseille France.	1·4700	"	"	"
"	11	"	35224	W. W. Gibson, Kingston.	3 "	45	Nat. Drug & Chemical Co.		1·4700	"	"	"
"	12	"	35225	F. C. Clarke, Front St., Belleville.	3 "	60	Nat. Drug Co.....		1·4710	"	"	"
"	12	"	35226	R. Templeton, Front St., Belleville.	3 "	45	E. Loubon, Nice		1·4702	"	"	"

DISTRICT OF TORONTO H. J. DAGER, INSPECTOR.

May	15	Olive Oil..	35099	J. H. Stanley, Port Colborne.	3 Bots	75	Balfour Smye & Co, Hamilton.	Pure Lucca Oil. Guaranteed genuine Olive Oil. Imported by Crosse & Blackwell, London, Eng.	1·4700	Green	No colour.	Genuine.
"	16	"	35100	J. T. Festing, St. Catharines.	3 "	60	" "	Huile d'Olive superfine Clarifiee.	1·4697	"	"	"
"	13	"	35101	Lalor & Stone, Dunville.	3 "	10	Geo. Watt & Son, Brantford.	Labelled Pure Lucca Oil. Guaranteed genuine Olive Oil.	1·4706			"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost		Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis.				Remarks and opinion of the Chief Analyst.
				Quantity.	Cents.			Refractive Index at 15·5c.	Iodine number.	Nitricacid colour test.	Halphen's colour test.	
DISTRICT OF TORONTO—*Continued.*												
1908.								p. c.				
May 15	"	35102	S. H. Griffith, Welland	½ pt.	40	Gorman Eckert, London.	Labelled Sublime Lucca Olive Oil. Casino Brand.	1·4700	....	Green	No colour.	Genuine.
" 15	"	35103	R. Greenwood, Port Colborne.	3 Bots	38	J. T. Festing, St. Catharines.	Labelled Finest Cream Pure Lucca Olive Oil Triple clarification.	1·4702	...	" ..	" ..	"
DISTRICT OF LONDON—T. KIDD, INSPECTOR.												
May 16	Olive Oil.....	30910	Mathew Williams, Grocer, Seaforth.	3 Bots	75	Crosse & Blackwell, London, Eng.	Vendor bought from E. Adams, London.	1·4698	...	" ..	" ..	"
" 20	"	30917	Edward O'Flaharty, Grocer, Stratford.	3 "	90	E. Adams, Stratford.	.....	1·4700	....	" ..	" ..	"
" 20	"	30919	Barnsdale Trading Co., Stratford.	3 "	30	Olive Grocers Association, Canada.	Canada Spice Co. Assoc., London, Ont.	1·4702	....	" ..	" ..	"
" 20	"	30921	Walsh Bros., Stratford	3 "	75	Not known.	.....	1·4700	...	" ..	" ..	"
June 30	"	30933	S. A. Hodge, Mitchell	3 "	50	Nat. Drug Co., Hamilton, Ont.	.....	1·4704	....	" ..	" ..	"
DISTRICT OF WINDSOR—J. TALBOT, INSPECTOR.												
May 15	Olive Oil.....	34542	J. McRobie, Petrolia	10 oz.	40	Nat. Drug Co., London	Not Labelled.	1·4698	....	" ..	" ..	"
" 15	"	34544	W. H. Dale, Petrolia..	9 "	30	Drug Trading Co., Toronto.	De Nice Brand.	1·4705	....	" ..	" ..	"
" 19	"	34554	C. E. Nasmyth, Strat-ford.	12 "	45	Warrick Freres Grasse France.	Not Labelled.	1·4701	....	" ..	" ..	"
June 10	"	34563	R. H. Walton, Wood-stock.	12 "	50	Nat. Drug Co., Toronto.	do	1·4702	....	" ..	" ..	"

DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.

May	19	Olive Oil	33123	Wright & Co., grocers, Minnedosa.	½ pt.	25	Imported by Crosse & Blackwell, London, Eng.	Pure Lucca Oil	1·4705		Green.	No colour.	Genuine.
"	19	"	33124	Key & Armitage, Minnedosa.	10 oz.	15	E. Morette, Nice	Huile de Olive Vierge, Nice.	1·4738	109	Brown.	Red	Adulterated.
"	21	"	33125	Poyntz & Co., druggists, Winnipeg.	3 bots.	75	Lyman Bros. Co., Ltd., Toronto.	Cream Salad Oil. Lyman brand.	1·4700		Green.	No colour.	Genuine.
"	21	"	33126	Brown's Drug Store, Winnipeg.	1 pt.	35	Frederick Freres & Cie., Grasse.	Huile de Olive. Superfine.	1·4700		"	"	"
"	22	"	33127	Colcleugh & Co., druggists, Winnipeg.	3 bots.	75	Hippolyte Réné, Marseilles, France.	Huile de Olive. Doublement clarifier.	1·4705		"	"	"
"	20	"	33148	S. J. McDermott	18 oz.	90	Holbrook & Co.	Huile de Olive	1·4698		"	"	"
"	22	"	33149	St. John's Pharmacy, Thornton Andrews, Winnipeg.	10 "	25	Not given	Sold as ordinary olive oil.	1·4740	112	Brown	Red	Adulterated.

DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.

June	22	Olive Oil	28930	Campbell, Wilson & Horne, Calgary.	3 bots.	60	Holbrook & Co., Nice		1·4701		Green.	No colour.	Genuine.
"	22	"	28931	L. T. Mewburn & Co., Calgary.	3 "	55	Crosse & Blackwell, Ltd., London.		1·4698		"	"	"
"	22	"	28932	Bole Drug Co., Calgary	3 "	45	Unknown		1·4698		"	"	"
"	22	"	28933	G. F. & J. Galt, Ltd., Calgary.	3 "	30	F. F. Dally & Co., Ltd., Hamilton.		1·4739		Brown.	Red	Adulterated.
"	22	"	28934	Georgeson & Co., Ltd., Calgary.	3 "	1.25	Reiss & Brady, Montreal.		1·4702		Green.	No colour.	Genuine.

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

May	13	Olive Oil	34260	T. S. Wallace, Vancouver.	3 bots.	90	Seville Packing Co., New York.	Absolutely pure and unadulterated. Bottled in Nice, France, from sound olives.	1·4703		Green.	No colour.	Genuine.
"	14	"	34261	J. A. Dickie, Vancouver.	3 "	75	Schroder & Schripert, France.		1·4702		"	"	"
"	14	"	34262	J. A. Dickie, Vancouver.	3 "	75	Crosse & Blackwell, London, Eng.	Guaranteed genuine	1·4700		"	"	"
"	14	"	34263	E. H. McMillan, Vancouver.	3 "	45	G. F. Sutton, London, Eng.	Sold as olive oil	1·4697		"	"	"
"	14	"	34264	H. A. Edgett Co., Ltd., Vancouver.	3 "	45	Holbrooke & Co., France.	Guaranteed pure	1·4704		"	"	"

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BULLETIN No. 159—OLIVE OIL.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Refractive Index at 15·5c.	Iodine number.	Nitric acid colour test.	Halphen's colour test.	Remarks and opinion of the Chief Analyst.
DISTRICT OF VICTORIA—D. O. SULLIVAN, INSPECTOR.												
1908.								p. c.				
May 28	Olive Oil.....	34875	W. B. Hall, Victoria, B.C.	1 bot..	50	H. J. Henry & Co., Pittsburgh, Pa.	.....	1·4706	....	Green ..	No colour.	Genuine.
June 17	"	34890	Windsor Grocery Co., Victoria, B.C.	1 pt..	90	American Olive Co., Los Angeles, Cal.	Am. Olive Co. Pure olive oil.	1·4708	...	" ..	" ..	"
" 17	"	34891	Windsor Grocery Co., Victoria, B.C.	1 " ..	50	Crosse & Blackwell, London, Eng.	Crosse & Blackwell. Pure olive oil.	1·4708	....	" ..	" ..	"
" 17	"	34894	Saunders Grocery Co., Ltd., Victoria, B.C.	1 " ..	65	W. C. Polson & Co., Kingston, Ont.	.....	1·4704	....	" ..	" ..	"
" 17	"	34897	Saunders Grocery Co., Ltd., Victoria, B.C.	1 " ..	65	Meyers & Lange, New York.	.....	1·4703	....	" ..	" ..	"

APPENDIX J.

BULLETIN No. 160—NATIVE WINES.

OTTAWA, September 1, 1908.

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR,—I have the honour to report herewith upon 101 samples of Native Wine collected during February, March and April of the present year. These were obtained in 14 of the Inspectoral Districts of Canada (none from Prince Edward Island), and may be taken to fairly represent Native Wine as sold in Canada.

The only other systematic examination of wines by this Department is reported in Bulletin 38, of June, 1894. On that occasion 124 samples were analysed; but this number included many imported wines. Only 36 samples are of acknowledged Canadian manufacture. In his introduction to the Bulletin in question, the late Chief Analyst says:—'In the present report it is proposed to make a first contribution towards a 'better understanding of the subject, and to endeavour to point out how far the various 'wines sold in Canada have been fortified, or made from added sugar.'

The results of analysis show that, with three doubtful exceptions, all of the samples of Canadian wines examined in 1894, were made from sugared must. This conclusion was reached by assuming a maximum of 20 per cent natural sugar in grape must, and the production of 50 per cent (weight) of alcohol from the fermentation of sugar. By far the larger number of these wines contained from 5 to 12 per cent of unfermented sugar, while the alcohol was usually present to about 10 to 12 per cent, (22 to 26 per cent proof spirit). The popular taste seems to demand a sweet wine, because some 6 or 7 samples occur in which the residual sugar is less than 0·5 per cent, proving that dry wines can be produced in Canada, if desired.

The most difficult and expensive part of wine production is the cellar treatment. Other fermentations than the alcoholic are prone to take place, and acidity results. To check these undesirable fermentations alcohol is sometimes added, and the wine is impaired as regards bouquet, and other qualities. Salicylic acid, or other preservative may be used to check fermentation, without addition of alcohol. In any case, the production of those esters, and other by-products of the natural fermentation of sugar, whose presence gives character and value to the best wines, is hindered, and the resultant beverage while not necessarily unwholesome, as a wine, is of low quality.

The present report (See Table I) indicates that, if judged by the same standard used in Bulletin 38, all the samples examined this year are made from wine must to

which sugar has been added; three samples being excepted. These are Nos. 27975 and 27976, made by la Cie Vinicole, St. Joseph of St. Hyacinthe, and 31576, by E. Bourget, of Montreal.

Only six (6) samples contain less than 0·5 per cent of residual sugar; the great majority of the samples showing from about 8 to 15 per cent of dextrose. It would appear that to produce a wine such as public taste demands, sugar in considerable quantity must be added to the grape juice.

As pointed out in Bulletin 38, the French law of 1889 defines wine as solely the product of the fermentation of fresh grape juice. Any additions to the juice must correspond to distinctive names in the product, which may be sold as 'Sugar Wine,' &c. We have no Canadian Standards in the matter of wines; but it may be well to note the definitions made legal in the United States in 1906.

1. Wine is the product made by the normal alcoholic fermentation of the juice of sound, ripe grapes, and the usual cellar treatment, and contains not less than seven (7) nor more than sixteen (16) per cent of alcohol, by volume (12·30 to 28·00 per cent proof spirit) and, in one hundred (100) cubic centimeters (20° C.), not more than one-tenth (0·1) gram of sodium chloride nor more than two-tenths (0·2) gram of potassium sulphate; and for red wine not more than fourteen hundreds (0·14) gram, and for white wine not more than twelve hundredths (0.12) gram of volatile acids produced by fermentation and calculated as acetic acid. *Red wine* is wine containing the red colouring matter of the skins of grapes. *White wine* is wine made from white grapes or the expressed fresh juice of other grapes.

2. *Dry wine* is wine in which the fermentation of the sugars is practically complete and which contains, in one hundred cubic centimeters (20° C.), less than one (1) gram of sugars and for dry red wine not less than sixteen hundredths (0·16) gram of grape ash and not less than one and six-tenths (1·6) grams of sugar-free grape solids, and for dry white wine not less than thirteen hundredths (0·13) gram of grape ash and not less than one and four-tenths (1·4) grams of sugar-free grape solids.

3. *Fortified dry wine* is dry wine to which brandy has been added, but which conforms in all other particulars to the standard of dry wine.

4. *Sweet wine* is wine in which the alcoholic fermentation has been arrested, and which contains, in one hundred (100) cubic centimeters (20° C.), not less than one (1) gram of sugars, and for sweet red wine not less than sixteen hundreds (0·16) gram of grape ash, and for sweet white wine not less than thirteen hundreds (0.13) gram of grape ash.

5. *Fortified sweet wine* is sweet wine to which wine spirits have been added. By Act of Congress, 'sweet wine' used for making fortified sweet wine and 'wine spirits' used for such fortification are defined as follows (sec. 43, Act of October 1, 1890, 26 Stat., 567, as amended by section 68, Act of August 27, 1894, 28 Stat., 509, and further amended by Act of Congress, approved June 7, 1906): 'That the wine spirits mentioned in section 32 of this act is the product resulting from the distillation of fermented grape juice to which water may have been added prior to, during, or after fermentation and economical distillation thereof, and shall be held to include the products from grapes or their residues, commonly known as grape brandy; and the pure sweet wine, which may be fortified free of tax, as provided in said section, is fermented grape juice only, and shall contain no other substance whatever introduced before, at the time of, or after fermentation, except as herein expressly provided; and such sweet wine shall contain not less than four per centum of saccharine matter, which saccharine strength may be determined by testing with Balling's saccharometer or must scale, such sweet wine, after the evaporation of the spirits contained therein, and restoring the sample tested to original volume by addition of water: *Provided*, That the addition of pure boiled or condensed grape must or pure crystallized cane or beet sugar or pure anhydrous sugar to the pure grape juice aforesaid, or the fermented product of such grape juice aforesaid, or the fermented product of such grape juice prior to the fortification provided by this Act for the sole purpose of perfecting sweet wine according to commercial standard, or

the addition of water in such quantities only as may be necessary in the mechanical operation of grape conveyors, crushers, and pipes leading to fermenting tanks, shall not be excluded by the definition of pure sweet wine aforesaid: *Provided however*, That the cane or beet sugar, or pure anhydrous sugar, or water, so used shall not in either case be in excess of ten (10) per centum of the weight of the wine to be fortified under this Act; *And provided further*, That the addition of water herein authorized shall be under such regulations and limitations as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may from time to time prescribe; but in no case shall such wines to which water has been added be eligible for fortification under the provisions of this Act where the same, after fermentation and before fortification, have an alcoholic strength of less than five per centum of their volume.'

6. *Sparkling wine*, is wine in which the after part of the fermentation is completed in the bottle, the sediment being disgorged and its place supplied by wine or sugar liquor, and which contains, in one hundred (100) cubic centimeters (20° C.), not less than twelve hundredths (0·12) gram of grape ash.

7. *Modified wine, ameliorated wine, corrected wine*, is the product made by the alcoholic fermentation, with the usual cellar treatment, of a mixture of the juice of sound, ripe grapes with sugar (sucrose), or a syrup containing not less than sixty-five (65) per cent of sugar (sucrose), and in quantity not more than enough to raise the alcoholic strength after fermentation, to eleven (11) per cent by volume.

8. *Raisin wine*, is the product made by the alcoholic fermentation of an infusion of dried or evaporated grapes, or of a mixture of such infusion or of raisins with grape juice.

It is apparent from the above that the term 'wine' may be legally applied to a very great variety of products of grape fermentation. Nor is it an easy matter to classify these wines in such a way as to obtain any useful results. Perhaps the most obvious division would be into red wines and white wines. Nearly all the subordinate characters which red wines possess are duplicated in the white wines.

Wines (red or white) may further be divided into *dry wines*, or those in which the fermentation of sugar is carried to completeness, or nearly so, and *sweet wines*, in which sugar above about one per cent. (1 p. c.) remains as such. It is to this last class that most of the native wines, now reported, belong.

Chambers makes the following classification of wines:—

1. Strong Dry Wines.—E.g. Sherry, Port, Madeira, Johannisberg.

2. " Sweet " — " Johannisberg Tokay, Malaga, Sweet Sherry, Sweet Champagne, Sweet Madeira, &c.

3. Aromatic Wines.—Rhine Wines, Moselle, Capri, Chablis, Sauterne, White Burgundy, &c.

4. Acid Wines.—Containing excess of acid.

5. Sparkling Wines.—Champagne, Sparkling Moselle, &c.

6. Perfect Wines, or those which contain no specially prominent ingredient, e.g. High grade Clarets, Bordeaux, Burgundies, Chambertin, &c.

7. Rough Wines.—Containing excess of tannin.

However it might be possible to arrange the wines of the world's produce into such closely defined groups, when an attempt is made to do this for our own native wines, quite insurmountable difficulties are met.

König (Chemie der Nahrungs und Genussmittel, Bd II, 1282) says:—'A very large 'number of kinds of wine exist; we may almost say that there are so many different 'kinds of wine as there are different kinds of grapes, and different grape-growing 'countries. Even the wine from the same region differs in different vineyards. One 'may however, divide the greater number of wines into three classes: I. Ordinary 'Table Wines; II. Dessert or Sweet Wines; III. Sparkling Wines; although it must 'be remembered that many wines form a transition from one class to the next.'

Definition necessarily implies limitation, or approximate agreement with type. Port Wine, for example, is not necessarily the product of a certain region of Spain; although it may be justly argued that a port wine, of other than Spanish origin, should be distinctively labelled to show the place of production. Apart from this consideration, it may be asked, what are the essential characters of port wine?

König (l.c. 1310) quotes, as the mean of many analyses of port wine, the following:—

Specific gravity	1·0088	
Alcohol	16·18	(= 34·8 p.c. (proof spirit)
Extract	8·25	
Sugar	6·04	
Non-Sugars	2·21	
Total Acidity	0.42	(as tartaric acid)
Volatile "	0·085	(as acetic acid)
Fixed "	0·335	(as tartaric ")

England and America afford the largest markets for Port Wine, and it is evident that some attempt to approximate to the port type governs the production of wine in Canada. That a very uncertain and vague conception of what constitutes this type is held by some of our wine makers, appears from a study of Table II, of this report. The 31 samples embraced in this table, were all sold under the name 'Canadian Port' or 'Native Port.'

It will be seen that they vary in specific gravity from 1·0002 to 1·0762.

Alcohol (proof spirit)	16·42	to 38·18
Extractive	2·65	to 24·29
Sugar	1·59	to 19·00
Non-Sugars	0·41	to 3·83
Total Acidity	0·525	to 1·035
Volatile "	0·066	to 0·473
Fixed "	0·345	to 0·645

For purposes of comparison I have introduced into Table II certain results of the analysis of genuine port wines. Even the port wines of Portugal itself, differ considerably among themselves, not alone in different years, but from different localities. Yet it will be seen that there is a general resemblance among them, in regard to their alcohol content, their residual sugar, their acidity, and otherwise. It is quite apparent that the extreme diversity illustrated by our Canadian so-called port wines, as tabulated, implies a lack of care in manufacture, or a regrettable ignorance of what constitutes this type of wine.

The high sugar content of most of these samples causes them to resemble Tokay or Malaga. König gives the mean sugar for a large number of samples of Tokay as 9·01 per cent with variation from about 2 to over 20 per cent. For 40 samples of Malaga wine, the mean sugar found was 18·32 per cent the mean alcohol being 12·60 per cent, (= 27·3 proof spirit).

As already pointed out, I cannot see any valid objection to the use of terms such as port, sherry, claret, tokay, &c., by Canadian manufactures, when it is distinctly recognized that the terms in question are employed to designate certain types or species of wine; and proper care is taken to make it clear that the brand offered is a Canadian product, believed to approximate more or less closely to the type of wine denominated port, claret, &c., as the case may be. The words Native, or Canadian, or the place of production, should always be distinctly printed on the label. It is very satisfactory to see that some of our wine makers have adopted special and distinctive names for the brands which they place on the market. This is an example which may well be followed by every manufacturer who feels confidence in his ability to produce a wine of such quality as to merit confidence from the public.

A highly objectionable practice indulged in by certain wine merchants, is the false labelling of native wines. The use of labels bearing the names of foreign makers, and places (presumbly of production) is apparently nothing else than fraud. Sample No. 31577 is labelled *Fine Old Port, Manuel Borez, Oporto.*

The only preservatives found in these wines are salicylic acid (in 29 samples) and sulphurous acid, or a sulphite in two samples.

This report cannot be taken as exhaustive for the subject with which it deals. The ash of wine, and its mineral constituents are matters of importance, as also the determination of glycerine and other secondary products of fermentation. Other important work necessitated the omission of these estimations; and the report must be regarded merely as a further contribution to the study of Canadian wines.

I beg to recommend its publication as Bulletin No. 160.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

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TABLE I.—NATIVE WINE

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
1908.							
			DISTRICT OF NOVA SCOTIA—				
Feb. 17	Native Wine	33624	Dillon Bros., Halifax, N.S.	3 bots.	38	Niagara Falls Wine Co., Niagara Falls, Ont.	Sold as Canadian Port.
" 17	"	33625	Jas. Scott & Co., Halifax, N.S.	3 "	40	T. Bright & Son, Niagara Falls, Ont.	" "
17	"	33626	T. F. Courtney & Co., Halifax, N.S.	3 "	60	J.S. Hamilton, Brantford, Ont.	" "
17	"	33627	Kelley & Glassey, Halifax, N.S.	3 "	60	T. G. Bright & Co., Niagara Falls, Ont.	" "
17	"	33628	G. R. Ramey & Co., Halifax, N.S.	3 "	40	Niagara Falls Wine Co., Niagara Falls, Ont.	" "
17	"	33629	A. Monaghan & Co., Halifax, N.S.	3 "	50	Stamford Park Wine Co., Niagara Falls, Ont.	" "
			DISTRICT OF NEW BRUNSWICK—				
Feb. 14	Native Wine	29655	R. Sullivan & Co., Dock St., St. John, N.B.	2 bots.	2 25	The Stamford Park Wine Factory, Stamford, Ont.	Brands, King Edward, Diana.
" 15	"	29656	Foster & Co., Union St., St. John, N.B.	3 "	1 50	Pelee Island Wine & Vineyards, Co., Brantford & Pelee Island.	St. Augustine brand.
" 15	"	29657	Thos. H. Haley, Charlotte St., St. John, N.B.	3 "	1 50	T. G. Bright & Co., (Niagara Falls Wine Co.)	Labelled, Niagara Falls Wine, Concord. Bottled by Thos. H. Haley, St. John, N.B.
17	"	29658	M. & T. McGuire, Water St., St. John, N.B.	3 "	1 50	The Ont. Grape Growing & Wine M'f'g. Co., Barnsdale, St. Catherines, Ont.	Bottled from bulk by Vendor.
18	"	29659	William L. Williams, Prince William St., St. John, N.B.	3 "	1 80	The Niagara Falls Wine Co., T. G. Bright & Co. Proprs, Toronto.	Bottled by Niagara Falls Wine Co., Niagara Falls. Ont. Catawba.
Mar. 7	"	29660	Hunt & McDonald, Fredericton, N.B.	3 "	1 80	The Ont. Grape Growing & Wine M'f'g. Co., St. Catherines, Ont.	Labelled Claret, The Ont. Grape Growing & Wine M'f'g. St. Catherines, Ont.

RESULTS OF ANALYSIS.

Alcohol, p.c.			Specific gravity of Sample.	Specific gravity of Distillate.	Total Solids.	Residual Sugar Dextrose	Non-sugar Solids.	Acidity.			Original sugar Solids.	Salicylic Acid.	Remarks and Opinion of the Chief Analyst.
Weight.	Vol.	Proof Spirit.						Total as Tartaric.	Fixed as Tartaric.	Volatile as Acetic.			
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
R. J. WAUGH, INSPECTOR.													
11·08	13·71	24·03	1·0334	0·9827	11·65	9·35	2·30	0·562	0·435	0·102	31·51	....	Sold as Canadian Port.
9·36	11·61	20·35	1·0424	0·9350	13·21	9·94	3·27	1·012	0·615	0·318	28·66	Present.	" "
11·23	13·90	24·36	1·0389	0·9825	12·91	10·62	2·32	0·615	0·345	0·216	33·08	....	Labelled St. Augustine, but sold as Canadian Port.
11·77	14·56	25·51	1·0330	0·9818	11·19	9·72	1·47	0·630	0·459	0·317	33·26	....	Sold as Canadian Port.
17·75	21·79	38·18	1·0109	0·9744	7·12	3·94	3·19	0·675	0·540	0·108	39·43	....	" "
11·31	13·99	24·52	1·0297	0·9824	9·01	7·86	1·15	0·630	0·480	0·120	30·48	Present.	" "
J. C. FERGUSON, INSPECTOR.													
11·23	13·90	26·36	1·0540	0·9825	16·55	16·02	0·53	0·548	0·450	0·078	38·48	....	
11·31	13·99	24·52	1·0425	0·9824	13·56	12·86	0·70	0·490	0·345	0·132	35·48	....	
11·77	14·56	25·51	1·0274	0·9818	8·89	8·52	0·37	0·604	0·450	0·123	32·06	....	
9·86	12·22	21·42	1·0594	0·9843	17·27	16·34	0·94	0·630	0·480	0·120	36·05	....	
11·31	15·21	26·66	1·0295	0·9811	9·57	8·90	0·67	0·675	0·435	0·192	31·52	....	
9·43	11·70	20·50	1·0143	0·9849	5·50	5·13	0·38	0·645	0·465	0·144	23·98	....	

TABLE I—NATIVE WINE

Date of Collection	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
1908.							
			DISTRICT OF QUEBEC—				
Feb. 11	Fine Old Port Wine.	26386	Joseph Prevost, Montmagny.	3 bots.	75	Vinicole, St. Hyacinthe.	
" 11	FineOldSherry Wine.	26387	" "	3 "	1 00	" "	
" 11	Fine Old Port Wine.	26388	" "	3 "	1 00	" "	
" 11	Ginger Wine..	26389	" "	3 "	1 00	" "	
" 18	Vin Oporto...	26400	A. Toussaint & Cie., Quebec.	4 "	1 00	Vendors.	
" 18	Vin Messe St. Nazaire.	26401	" "	4 "	84	"	
" 18	Claret National.	26402	" "	4 "	50	"	
			DISTRICT OF ST. HYACINTHE—				
Feb. 13	Native Wine (Red).	27968	J.N.Turcotte, Drummondville.	3 bots.	60	A. Toussaint & Cie, Quebec.	Barrel marked Chatean Richer Wine Co., Quebec. Port X. A. Toussaint & Cie, Fabricant.
" 13	Native Wine..	27969	B. Talbot, Stanfield.	3 "	75	Niagara Falls Wine Co., Niagara Falls, Ont.	
" 14	" ..	27970	J. H. A. Talbot, Arthabaskaville.	3 "	75	" "	
" 18	" ..	27971	L. H. Oliver, Sherbrooke.	3 "	60	T. G. Bright & Co., Toronto.	
" 19	" ..	27972	A. Trudeau, Coaticook.	3 "	1 05	D. McManamy & Co., Sherbrooke.	
" 21	" ..	27973	Nap. Lepine, Magog.	3 "	50	St. David's Wine Growers, Toronto, Ont.	From vessel marked "Port."
" 25	Native Wine (Blanc).	27975	La Cie Vinicole, St. Joseph de St. Hyacinthe.	3 "	25	Vendors.	
" 25	Native Wine (Claret)..	27976	" "	3 "	25	"	
" 25	Native Wine (Port).	27977	" "	3 "	25	"	*
" 25	Native Wine..	27978	Louis Cote, Cavignac Co., Bagot.	3 jars.	free	Vendor	
" 25	Native Wine (Blanc.)	27979	Noel Peroti, St. Hughes Co.	3 bots.	50	"	
" 25	Native Wine (Red).	27980	" "	3 "	60	"	

* Both bottles broken in carriage.

RESULTS OF ANALYSIS.

Alcohol, p.c.			Specific gravity of Sample.	Specific gravity of Distillate.	Total Solids.	Residual Sugar Dextrose.	Acidity.				Original sugar Solids.	Salicylic Acid.	Remarks and Opinion of the Chief Analyst.
Weight.	Vol.	Proof Spirit.					Non-sugar Solids.	Total as Tartaric.	Fixed as Tartaric.	Volatile as Acetic.			
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c	
E. BELAND, INSPECTOR.													
10·69	13 24	23 21	1·0214	0·9832	8·90	5 07	3 83	0·630	0 420	0 168	26 45	Present.	Labelled 'Fine Old Port Wine.'
11·46	14 18	24 85	0·9952	0·9822	2 55	0 58	1 97	0 802	0 312	0 392	23 50	.....	
9 21	11 44	20 04	1·0002	0·9852	2 65	1 59	1 06	0 600	0 375	0 180	20 01	.....	Sold as Fine Old Port Wine.
6·78	8 45	14 81	1·0932	0·9887	25·22	5 66	19 56	0·150	0 090	0·048	19 22	.....	Ginger Wine.
10·77	13 34	23 37	1·0376	0·9831	12 08	11 34	0 74	0·622	0 540	0·066	32 88	.....	Labelled 'Oporto,' A. Toussaint et Cie.
12 46	15 40	26·99	0·9955	0·9809	3·00	0 57	2 13	1 050	0 975	0 060	25 49	.....	
10·69	13 24	23 21	0 9915	0·9832	1·61	0 20	1 41	0 735	0 337	0 319	21 58	.....	
J. C. ROULEAU, INSPECTOR.													
10·77	13 31	23 37	1·0473	0·9831	14·66	13·65	1 01	0 630	0 357	0·218	35 19	.....	Barrel marked 'Port X.'
12·54	15 49	27 15	1·0215	0·9808	8·46	7·31	1 15	0·547	0 450	0 078	32 39	.....	
12·23	15 12	26 49	1·0283	0·9812	9·85	8·89	0 96	0 615	0 336	0 223	33 35	.....	
11·15	13 81	24 19	1·0263	0·9826	8 17	6·68	1 49	0 600	0 525	0 060	28 98	.....	
12·00	14 84	26·00	1·0282	0·9815	8·88	7·75	1 13	0·533	0 458	0 060	31 75	.....	
7·80	9·70	17·00	1·0747	0 9872	17·28	16·66	0·72	0·660	0·435	0·180	32·26	.....	From a vessel marked 'Port'
7·07	8·80	15·42	0 9968	0·9883	1·51	0·09	1·42	0·503	0·212	0·233	14·23	.....	
7·47	9·29	16·28	0·9972	0·9877	1·92	0·17	1·75	0·975	0·272	0·562	15·11	.....	
...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Not received.
12·85	15·86	27·81	1·0182	0·9801	7·17	5·63	1·54	0 712	0 488	0·270	31 33	.....	
11·23	13·90	24·36	1·0158	0·9825	7·18	5·98	1·20	0·502	0·375	0·102	28 44	.....	
10·85	13 43	23·54	1·0102	0 9830	6 52	5·33	1·19	0·712	0·570	0·114	27·03	.....	

TABLE I.—NATIVE WINE

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
1908.							
			DISTRICT OF MONTREAL—				
Mar. 3	Native Wine..	31574	G. Morin, 333 Mount Royal ave., Montreal.	3 bots.	60	Vendor	Labelled, Muscatel de France, 1898.
" 3	" ..	31575	" " ..	3 "	60	"	Labelled, Oporto de France, 1898.
" 12	" ..	31576	E. Bourget, 331 Mount Royal ave., Montreal.	3 "	50	"	Labelled, Chateau Ramsay.
" 12	" ..	31577	" " ..	3 "	1 00	"	Labelled, Fine Old Port, Manuel Borez. Oporto.
Feb. 17	" ..	32583	Beauvais Lalonde & Co., 482 St. James St., Montreal.	3 "	75	Niagara Wine Co....	Bottled by Vendor and labelled, Canadian Wine, made from carefully selected hand picked grapes.
" 17	" ..	32584	Joseph Landry, 683 St. James Street, Montreal.	3 "	75	Godwin, Maloney & Lawrence, Montreal.	Bottled by vendor, and labelled, Pure Canadian Grape Wine.
" 20	" ..	32585	A. Sabourin, 387 Ontario East., Montreal.	3 "	75	Girardot Wine Co., Ltd., Sandwich, Ont.	Labelled, Native Port.
" 19	" ..	32586	Alphonse Lefaivre, 337 Ontario East, Montreal.	3 "	90	Vendor	Labelled, Vin de Raisin du Canada. Chateau St. Denis Brand.
" 19	" ..	32587	" " ..	3 "	90	"	Labelled, Vin de Raisin du Canada.
" 25	" ..	32588	U. Brunet, St. Ann de Bellevue, P.Q.	3 "	75	Laporte, Martin & Cie.	.....
" 25	" ..	32596	J. L. Desaulniers, 492 St. Lawrence B., Montreal.	3 "	75	Vendor	Bottled and labelled by Vendor.
			DISTRICT OF OTTAWA				
Feb. 12	Native Wine..	34132	L. H. Major & Bro. Ottawa.	3 bots.	1 80	J. S. Hamilton & Co., Brantford.	Labeled Pelee Island Wine and Vineyards Co., St. Augustine Reg. at Ottawa.

Results of Analysis.															Remarks, and Opinion of the Chief Analyst.
Alcohol, p.c.								Acidity.							
Weight.	Vol.	Proof Spirit.	Specific gravity of Sample.	Specific gravity of Distillate.	Total Solids.	Residual Sugar = Dextrose.	Non-sugar Solids.	Total as Tartaric.	Fixed as Tartaric.	Volatile as Acetic.	Original sugar Solids.	Salicylic Acid.	
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
J. J. COSTIGAN, INSPECTOR.													
14·18	17·48	30·64	1·0039	0·9787	4·69	2·51	2·18	0·502	0·345	0·126	30·87	.....	Contains sulphites, SO_2 = 0·0204 p.c.
10·08	12·49	21·89	1·0342	0·9840	10·95	8·52	2·43	0·562	0·420	0·114	28·68	.....	Labelled, 'Oporto de France, 1898, G. Morin.'
7·67	9·04	16·71	0·9965	0·9874	1·67	0·31	1·36	0·600	0·187	0·330	15·65	Present.	
12·46	15·40	26·99	1·0125	0·9809	7·03	6·30	0·73	0·623	0·433	0·152	31·22	.....	Labelled, 'Fine Old Port.' Manuel Borez, Oporto.
11·23	13·90	24·36	1·0311	0·9825	10·65	9·33	1·32	0·607	0·362	0·196	31·79		
11·46	14·18	24·85	1·0279	0·9822	10·21	8·31	1·90	0·697	0·252	0·382	31·23		
8·93	11·08	19·42	1·0519	0·9856	15·10	12·88	2·22	1·035	0·413	0·473	31·74	.....	Labelled, 'Native Port.' Girardot Wine Co.
9·64	11·96	20·96	1·0923	0·9846	1·84	0·08	1·76	0·667	0·382	0·228	19·36	.....	Raisin wine.
8·57	10·65	18·65	1·0655	0·9861	3·34	3·06	0·28	0·650	0·305	0·300	20·20	.....	"
12·38	15·30	26·82	1·0194	0·9810	8·20	6·41	1·79	0·630	0·366	0·264	31·17		
7·80	9·70	17·00	1·0723	0·9872	18·95	11·42	7·53	0·892	0·423	0·375	27·02		
—J. A. RICKEY, INSPECTOR.													
10·92	13·52	23·70	1·0272	0·9829	9·24	8·08	1·16	0·745	0·430	0·252	29·92		

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TABLE I—NATIVE WINE

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
1908.							
			DISTRICT OF OTTAWA				
Feb. 13	Native Wine.	34133	The Ottawa Wine Vaults, Ottawa.	3 "	75	St. David's Wine Growers Co., Toronto.	Vendor said sample was from a bbl. Marked Toronto S. native 271 labelled superior port.
" 14	"	34134	Wall & Co., Ottawa.	3 "	75	Bright & Co., Toronto	Labeled native wine.
" 15	"	34135	H. Bigras, Ottawa.	3 "	75	Niagara Falls Wine Co.	
" 20	"	34136	McDermott & McCarthy, Prescott.	3 "	1·80	St. David's Wine Growers Co.	
" 21	"	34137	Jos. Lavigne, Ottawa	3 "	75	Ottawa Wine Vaults, Ottawa.	Bottled by Vendor from bbl. Vendor said sample was manufactured by St. David's Wine Growers Co., Toronto.
			DISTRICT OF KINGSTON				
Feb. 11	Native Wine.	33078	G. Thompson, Princess St., Kingston	3 bots.	1·50	St. David's Wine Growers Co., Toronto.	
" 11	"	33079	A. Tyo, Princess St., Kingston.	3 "	1·50	" "	
" 11	"	33080	B. Lawlor, Wellington St., Kingston.	3 "	1·50	St. Augustine, Brantford & Pelee Island, Ont.	
" 12	"	33081	Wesley Bullen, Front St., Belleville.	3 "	1·25	" "	
" 12	"	33082	J. Hunter, Ontario St., Port Hope.	3 "	1·20	T. G. Bright, Toronto	
" 13	"	33083	T. J. R. Mitchell, Hunter St., Peterboro'.	3 "	1·50	Vendor.	
			DISTRICT OF TORONTO				
Feb. 24	Native Wine.	35050	Adam Balentine & Bro., Hamilton.	3 bots.	75	Balfour & McLaren, Hamilton.	Labeled native wine.
" 26	"	35051	The Ontario Grape Growing Mfg. Co., St. Catherines.	3 "	1·50	Vendors.	Labeled Golden Diana.
" 26	"	35052	E. G. Brown, St. John's West.	3 "	75	Vendor	
" 28	"	35054	Stamford Park Wine Co., Stamford.	3 "	75	Vendors	Labeled native port wine.

RESULTS OF ANALYSIS.

Alcohol, p.c.			Specific gravity of Sample.	Specific gravity of Distillate.	Total Solids.	Residual Sugar—Dextrose.	Non-Sugar Solids.	Acidity.			Original sugar Solids.	Salicylic Acid.	Remarks and Opinion of the Chief Analyst.
Weight.	Vol.	Proof Spirit.						Total as Tartaric.	Fixed as Tartaric.	Volatile as Acetic.			
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
J. A. RICKEY, INSPECTOR—*Concluded*													
7 53	9 37	16 42	1 0745	0 9876	19 88	18 61	1 27	0 712	0 468	0 195	33 67	.. ....	Brl. labeled 'Superior Port.'
11 46	14 18	24 85	1 0504	0 9822	12 81	11 29	1 52	0 698	0 510	0 126	34 21		
12 23	15 12	26 49	1 0246	0 9812	9 90	8 94	0 96	0 645	0 364	0 225	33 40		
8 07	10 03	17 58	1 0715	0 9868	18 40	17 57	0 83	0 728	0 380	0 279	33 71	....	Labelled 'Port'—St. David's Co., Toronto.
7 53	9 37	16 42	1 0754	0 9876	19 27	18 00	1 27	0 720	0 396	0 259	33 06	Doubtful	
J. HOGAN, INSPECTOR.													
8 71	10 82	18 96	1 0618	0 9859	17 60	16 58	1 02	0 787	0 645	0 114	34 00	Present.	Labeled 'Port'—St. David's Wine Co.
8 36	10 38	18 20	1 0722	0 9864	18 33	16 15	2 18	0 675	0 487	0 150	32 87		
7 53	9 37	16 42	1 0607	0 9876	15 76	13 94	2 82	0 997	0 547	0 360	29 00		
12 08	14 93	26 17	1 0370	0 9814	12 74	11 34	1 40	0 690	0 465	0 180	35 50		
13 54	16 70	29 27	1 0119	0 9795	7 26	5 88	1 38	0 562	0 540	0 018	32 96	.....	Contains sulphites SO^2 =0 0075 p.c.
11 77	14 56	25 51	1 0464	0 9818	14 37	13 30	1 07	0 562	0 420	0 114	36 84		
H. J. DAGER, INSPECTOR.													
12 15	15 02	26 33	1 0167	0 9813	7 91	5 55	2 26	0 960	0 877	0 066	29 85		
10 38	12 87	22 55	1 0462	0 9836	13 48	12 81	0 67	0 697	0 562	0 108	33 57	Present.	
12 54	15 49	27 15	1 0321	0 9808	12 20	10 61	1 59	0 653	0 255	0 319	35 69		
10 69	13 24	23 21	1 0314	0 9832	10 96	9 38	1 58	0 765	0 503	0 210	30 76	Present.	Labeled 'Native Port' Wine.

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TABLE I —NATIVE WINE

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report
1908.							
			DISTRICT OF TORONTO				
Feb. 28	Native Wine..	35055	Niagara Falls Wine Co., Niagara Falls South.	3 " .	75	Vendors.	Labeled 'Diamond' T. G. Bright & Co.
Mar. 4	" ..	35056	J. W. Lee & Co., Toronto.	3 " .	60	"	....
" 5	" ..	35057	R. L. Haskins, Hamilton.	3 " .	60	Vendor.....	....
" 5	" ..	35058	Jas. Osborne & Sons, Hamilton.	3 " .	1·20	Haskins Wine Co...	Purchased in bulk and bottled by Vendor
" 5	" ..	35059	Haskins Wine Co., Hamilton.	3 " .	75	Vendors....	Labeled native port
6	" ..	35060	John Mather, Toronto.	3 " .	75	A. J. Bright & Co., Niagara Falls.	Labeled pure Canadian grape wine bottled by Vendor.
" 6	" ..	35061	D. G. Stewart & Co., Toronto.	3 " .	1·50	Pelee Island Wine and Vine Yards Co., Ltd.	Bottled by manufacturers.
			DISTRICT OF LONDON—				
Feb. 3	Native Wine..	30467	Thomas Quirk, Stratford.	3 pts.	50	Haskin Wine Co	....
" 13	" ..	30471	Walsh Bros., Stratford.	.....	.....	T. G. Bright & Co., Niagara Falls.	.....
" 14	" ..	30475	William Dawson, Seaforth.	1 bot.	50	J. S. Hamilton, President, Pelee Island Assoc. Co., Brantford.	.....
" 21	" ..	30478	C. H. Pugh, Clinton, Ont.	1½ qt.	60	Joseph Ratinbury, Clinton.	.....
" 25	" ..	30483	Fred Sharp, St. Marys.	1 bot.	35	Niagara Wine Co., Niagara Falls.	.....
" 29	" ..	30492	Asson Ringler, Listowell.	1 qt.	50	St. Davids Wine Co.	.....
			DISTRICT OF WINDSOR—				
Feb. 18	Native Wine..	34504	John A. Campbell..	3 qts.	1 50	N. Guindon, Sandwich.	.....
" 19	" ..	34509	F. A. Robert, Chatham.	3 bots.	1 50	Stamford Park Wine Co.	.....
" 19	" ..	34519	Taylor & McKay, Chatham.	3 " .	1 50	Haskins & Co., Hamilton.	....
Mar. 11	" ..	34521	Ed. Shea, Chatham..	3 " .	75	Stamford Park Wine Co., Niagara Falls.	.....
" 11	" ..	34522	Hockin Bros., Chatham.	3 " .	1 20	J. S. Hamilton, Pelee Island.	.....
April 9	" ..	34524	J. H. Price, St. Thomas.	3 " .	1 50	Niagara Falls Wine Co., (T. J. Bright & Co.)	. . ..

Results of Analysis.														Remarks and Opinion of the Chief Analyst.
Alcohol, p.c.			Specific gravity of Sample.	Specific gravity of Distillate.	Total Solids.	Residual Sugar—Dextrose.	Non-sugar Solids.	Acidity.			Original sugar Solids.	Salicylic Acid.		
Weight.	Vol.	Proof Spirit.						Total as Tartaric.	Fixed as Tartaric.	Volatile as Acetic.				
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
—H. J. DAGER, INSPECTOR—*Concluded.*														
12·38	15·30	26·82	1·0406	0·9810	13·52	11·76	1·76	0·675	0·398	0·222	36·52			
10·15	12·58	22·06	1·0495	0·9839	14·61	13·41	1·20	0·728	0·373	0·284	33·71	Present.		Labeled 'Port'— St. David's Co., Toronto.
9·43	11·70	20·50	1·0385	0·9849	12·34	11·18	1·16	0·660	0·315	0·276	30·04			
8·79	10·91	19·11	1·0627	0·9858	17·00	16·59	0·41	0·525	0·360	0·126	34·17	Present.		Labeled 'Extra Quality Finest Native Port.'
7·73	9·62	16·86	1·0140	0·9873	7·74	6·51	1·23	0·682	0·368	0·252	21·97	.....		Labelled 'Native Port' The Haskins Wine Co. Hamllton.
12·31	15·21	26·66	1·0291	0·9811	10·18	8·87	1·31	0·525	0·575	0·156	33·49			
11·85	14·65	25·67	1·0341	0·9817	11·38	10·26	1·12	0·705	0·372	0·266	33·96			
T. KIDD, INSPECTOR.														
10·00	12·40	21·73	1·0386	0·9841	11·36	10·76	0·60	0·487	0·375	0·090	30·76	Present.		
11·54	14·27	25·01	1·0321	0·9821	11·43	8·74	1·69	0·562	0·435	0·102	31·82	.....		
10·77	13·34	23·37	1·0426	0·9831	13·58	11·37	2·21	0·592	0·412	0·144	32·91	.....		Labelled 'St. Augustine.'
12·38	15·30	26·82	1·0309	0·9810	11·70	8·49	3·21	0·562	0·461	0·081	33·25	.....		
11·62	14·37	25·18	1·0337	0·9820	11·65	9·52	2·13	0·525	0·450	0·060	32·76	.....		
7·60	9·45	16·57	1·0756	0·9875	20·41	17·74	2·67	1·026	0·457	0·375	32·94	Present.		
J. TALBOT, INSPECTOR.														
8·57	10·65	18·65	1·0656	0·9861	17·77	15·92	1·85	0·900	0·525	0·300	33·06	.....		
9·93	12·31	21·57	1·0359	0·9842	11·70	10·11	1·59	0·833	0·357	0·381	29·97	Present.		Labelled 'Fine Old Native Port.'
12·23	15·12	26·49	1·0251	0·9812	8·97	7·27	1·70	0·652	0·465	0·150	31·73	.....		Labelled 'Fine Old Port.'
10·69	13·24	23·31	1·0324	0·9832	11·16	9·69	1·47	0·607	0·435	0·138	31·67	Present.		
10·77	13·34	23·37	1·0460	0·9831	14·31	13·43	0·88	0·525	0·450	0·060	34·97	.....		
11·85	14·65	25·67	1·0400	0·9817	13·08	11·13	1·95	0·810	0·480	0·264	34·83	.....		Labelled 'Fine Old Port Wine.'

9-10 EDWARD VII., A. 1910

TABLE I—NATIVE WINE

Date of Collection.	Nature of Sample.	No. of Samples.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
1908.							
			DISTRICT OF MANITOBA—				
Feb. 13	Native Wine..	25888	The Geo. Lindsay Co., Winnipeg, Man.	3 bots.	1 50	The Stamford Park Wine Co., Niagara Falls, Ont.	.....
" 13	" ..	25889	The Glasgow Liquor House (Ripstein & Co.) 706 Main St., Winnipeg, Man.	3 " .	1 65	Not given.....	..
" 13	" ..	25890	T. D. Cavanagh, Winnipeg, Man.	3 " .	1 65	J. W. Lee, Toronto, Ont.	.....
" 14	" ..	25891	The City Liquor Store, Graham & Kidd, 314 McDermott St., Winnipeg, Man.	3 " .	1 50	Not given..	... ...
" 14	" ..	25892	Paul Sala, Winnipeg, Man.	3 " .	1 20	T. J. Bright, Niagara Falls, Ont.	Sold as native wine labelled Port.
" 14	" ..	25893	J. Fisher, 250 Main St., Winnipeg, M.	3 " .	1 35	St Davids Wine Growers Co., 60 Atlantic Ave., Toronto, Ont.	....
			DISTRICT OF CALGARY—				
Feb. 25	Native Wine..	28907	Moodie Liquor Co., Calgary.	3 pts.	30	Stamford Park Wine Co., Niagara Falls, Ont.	.....
" 25	" ..	28908	J. Diamond, Calgary	3 " .	30	St. David Wine Growers Co., Toronto, Ont.	....
" 25	" ..	28909	Great West Liquor Co., Ltd., Calgary.	3 " .	30	J. W. Lee & Co., Toronto, Ont.	....
" 25	" ..	28910	Hudson Bay Co., Calgary.	3 " .	30	T. G. Bright & Co., Niagara Falls, Ont.	....
" 28	" ..	28911	J. E. Houson, Medicine Hat.	3 " .	30	" " ..	....
" 28	" ..	28912	H. E. Whiffin, Medicine Hat.	3 " .	30	Not known.....	....
			DISTRICT OF VANCOUVER—				
Feb. 19	Native Wine..	34238	Gold Seal Liquor Co., Pender and Vancouver.	3 pts.	60	J. W. Lee & Co., Toronto.	St. Elmo Brand...
" 19	" ..	34239	Benwell, Peart & Co., Cambie St., Vancouver.	3 " .	75	St. David Wine Co., Toronto.	S. Port Brand....
" 19	" ..	34240	W. Urquhart, Cordova St., Vancouver.	3 " .	50	Niagara Falls Wine Co.	....

Results of Analysis..														Remarks and Opinion of the Chief Analyst.
Alcohol, p.c.			Specific gravity of Sample.	Specific gravity of Distillate.	Total Solids.	Residual Sugar—Dextrose.	Non-sugar Solids.	Acidity.			Original sugar Solids.	Salicylic Acid.		
Weight.	Vol.	Proof Spirit.						Total as Tartar c.	Fixed as Tartaric.	Volatile as Acetic.				
p.c.	p.c.	p.c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.			
A. C. LARIVIERE, INSPECTOR.														
12·23	15·12	26·49	1·0212	0·9812	8·36	7·53	0·83	0·780	0·540	0·192	31·99	Present.		
9·50	11·79	20·65	1·0437	0·9848	12·68	11·71	0·97	0·825	0·483	0·273	30·71	"		
7·80	9·70	17·00	1·0742	0·9872	19·55	18·81	0·74	0·657	0·439	0·174	34·41	"		
9·57	11·87	20·81	1·0425	0·9847	13·05	12·19	0·86	0·720	0·690	0·024	31·33	"		
11·46	14·18	24·85	1·0324	0·9822	9·72	9·05	0·67	0·533	0·384	0·119	31·97			Labelled 'Port.'
7·40	9·21	16·14	1·0623	0·9878	21·28	20·88	0·40	0·660	0·425	0·188	35·68	Present.		
R. W. FLETCHER, INSPECTOR.														
11·46	14·18	24·85	1·0264	0·9822	10·34	7·64	2·70	0·607	0·517	0·072	30·56	Present.		
8·57	10·65	18·65	1·0647	0·9861	18·23	15·09	3·14	0·787	0·480	0·246	32·23	"		
7·40	9·21	16·14	1·0733	0·9878	20·13	16·38	3·75	0·731	0·397	0·267	31·18	"		
7·13	8·88	15·56	1·0399	0·9882	13·36	10·29	3·07	0·607	0·480	0·102	24·55	. . .		
11·08	13·71	24·03	1·0283	0·9827	10·50	6·93	3·57	0·727	0·592	0·108	29·09	. .		
8·43	10·47	18·35	1·0596	0·9863	17·35	14·32	3·03	0·802	0·385	0·237	27·26	Present.		
J. F. POWER, INSPECTOR.														
8·50	10·56	18·50	1·0675	0·9862	19·00	15·18	3·82	0·885	0·480	0·324	32·18	Present.		
8·57	10·65	18·65	1·0660	0·9861	17·88	14·50	3·38	0·810	0·450	0·288	31·64	"		Brand 'S. Port.'
12·46	15·40	26·99	1·0255	0·9869	9·90	7·87	2·03	0·863	0·467	0·317	32·79	. . . .		

9-10 EDWARD VII., A. 1910

TABLE 1—NATIVE WINE

Date of Collection.	Nature of Sample.	No. of Samples.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufactnrer or Furnisher as given by the Vendor.	Inspector's Report.
1908.							
DISTRICT OF VANCOUVER—							
Feb. 19	Native Wine.	34241	F. E. Hose Co., Westminster Ave., Vancouver.	3 "	50	Pelee Island Wine & Vintage Co.	
" 20	"	34242	Hudson Bay Co., Water St., Vancouver.	3 "	50	Niagara Falls Wine Co.	
" 20	"	34243	Pitter & Leiser, Water St. Vancouver.	3 "	30	T. G. Bright & Co., Niagara.	
DISTRICT OF VICTORIA—							
Feb. 20	Native Wine.	34849	Saunders Grocery Co., Ltd., Victoria, B.C.	3 qts.	1 00	J. S. Hamilton & Co., Brantford, Ont.	Bottled on premises of Vendor.
" 21	"	34850	West End Grocery Co., Ltd., Victoria, B.C.	3 "	1 05	" "	" "
" 21	"	34851	Fred Carne, Victoria, B.C.	3 "	1 00	St. David's Wine Growers, Toronto, Ont.	" "
" 22	"	34860	Dixi H. Ross & Co., Ltd., Victoria, B.C.	3 "	1 00	G. Bright & Co., Niagara Falls.	" "
" 22	"	34861	Fell & Co., Ltd., Victoria, B.C.	3 "	1 00	J. S. Hamilton, Brantford, Ont.	" "
" 22	"	34862	Windsor Grocery Co., Victoria, B.C.	3 "	1 05	Lawrance A. Wilson & Co., Ltd., Montreal, Que.	" "

Results of Analysis.													Remarks and Opinion of the Chief Analyst.
Alcohol, p.c.			Specific gravity of Sample.	Specific grevity of Destillate.	Total Solids.	Residual Sugar—Dextrose.	Non-sugar Solids.	Acidity.			Original sugar Solids.	Salicylic Acid.	
Weight.	Vol.	Proof Spirit.						Total as Tartaric.	Fixed as Tartaric.	Volatile as Acetic.			
p.c.	p.c.	p.c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
J. F. POWER, INSPECTOR—*Concluded.*													
8·93	11·08	19·42	1·0555	0·9856	15·51	8·85	6·66	0·690	0·393	0·238	26·71	.....	
10·08	12·49	21·89	1·0525	0·9840	15·49	12·24	3·25	0·592	0·375	0·174	32·40	Present.	
11·69	14·46	25·34	1·0317	0·9819	11·10	9·87	1·23	0·735	0·504	0·185	33·25	.....	
D. O. SULLIVAN, INSPECTOR.													
9·57	11·87	20·81	1·0501	0·9817	14·01	13·02	0·95	0·660	0·405	0·204	32·16	.....	Labelled 'Native Port.'
12·54	15·49	27·15	1·0430	0·9808	14·36	12·90	1·46	0·525	0·375	0·120	37·98	.....	Labelled 'Pure Native Port.'
7·60	9·45	16·57	1·0762	0·9875	20·51	19·00	1·51	0·750	0·398	0·282	31·20	Present.	Labelled 'Native Port.'
12·23	15·12	26·49	1·0308	0·9812	10·41	8·69	1·72	0·637	0·495	0·114	33·15	.....	" "
9·71	12·05	21·11	1·0496	0·9845	14·96	12·42	2·54	0·660	0·427	0·186	31·84	Present.	
12·46	15·40	26·99	1·0466	0·9869	14·10	12·88	1·22	0·765	0·471	0·235	37·80	"	Labelled 'Niagara Port Wine.'

TABLE II.—NATIVE WINES, SOLD AS 'PORT'—BULLETIN No. 160.

Departmental Number.	Results of Analysis.													Remarks, and Opinion of the Chief Analyst.
	Alcohol, p.c.			Specific gravity of Sample.	Specific gravity of Distillate.	Total Solids.	Residual Sugar—Dextrose.	Non-sugar Solids.	Acidity.			Original sugar Solids.	Salicylic Acid.	
	Weight.	Volume.	Proof Spirit.						Total as Tartaric.	Fixed as Tartaric.	Volatile as Acetic.			
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
33624	11·08	13·71	24·03	1·0334	0·9827	11·65	9·35	2·30	0·562	0·435	0·102	31·51	.....	
33625	9·36	11·61	20·35	1·0424	0·9350	13 21	9·94	3·27	1·012	0·615	0·318	28·66	Present.	
33626 (St. Augustine)	11·23	13·90	24·36	1·0389	0·9825	12·94	10·62	2·32	0·615	0·345	0·216	33·08	.....	
33627	11·77	14·56	25·51	1·0330	0·9818	11·19	9·72	1·47	0·630	0·459	0·317	33·26	.....	
33628	17·75	21 79	38·18	1·0109	0·9744	7·12	3·94	3·18	0·675	0·540	0·108	39·44	.....	
33629	11·31	13·99	24·52	1·0297	0·9824	9·01	7·86	1·15	0·630	0·480	0·120	30·48	Present.	
26386 Labelled	10·69	13·24	23·21	1·0214	0·9832	8·90	5·07	3·83	0·630	0·420	0·168	26·45	"	
26388	8·21	11·44	20·04	1·0002	0·9852	2·65	1·59	1·06	0·600	0·375	0·180	20·01	.....	
26400 Labelled	10·77	13·34	23·37	1·0376	0·9831	12·08	11·34	0·74	0·622	0·540	0·066	32·88	.....	
27968	10·77	13·34	23·37	1·0473	0·9831	14·66	13·65	1·01	0·630	0·357	0·218	35·19	.....	
27973	7·80	9·70	17·00	1·0747	0·9872	17·38	16·66	0·72	0·660	0·435	0·180	32·26	.....	
31575 Labelled	10·08	12·49	21·89	1·0342	0·9840	10·95	8·52	2·43	0·562	0·420	0·114	28·68	.....	
31577 "	12·46	15·40	26·99	1·0125	0·9809	7·03	6·30	0·73	0·623	0·433	0·152	31·22	.....	
32585 "	8·93	11·08	19·42	1·0519	0·9856	15·10	12·88	2·22	1·035	0·443	0·473	30·74	.....	
34133	7·53	9·37	16·42	1·0749	0·9876	19·88	18·61	1·27	0·712	0·468	0·195	33·67	.....	
34136 Labelled	8·07	10·03	17·58	1·0715	0·9868	18·40	17·57	0·83	0·728	0·380	0·279	33·71	.....	
33078	8·71	10·82	18·96	1·0618	0·9859	17·60	16·58	1·02	0·787	0·645	0 114	34·00	Present.	
35054 "	10·69	13·24	23·21	1·0314	0·9832	10·96	9·38	1·58	0·765	0·503	0·210	30·76	"	
35056 "	10·15	12·58	22·06	1·0495	0·9839	14·61	13·41	1·20	0·728	0·373	0·284	33·71	"	
35058 "	8·79	10·91	19·11	1·0627	0·9858	17·00	16·59	0·41	0·525	0·360	0·126	34·17	"	
35059 "	7·93	9·62	16·86	1·0140	0·9873	7·74	6 51	1·23	0·682	0·368	0·252	21·97	.....	
34509 "	9·93	12·31	21·57	1·0359	0·9842	11·70	10·11	1·59	0·833	0·357	0·381	29·97	Present.	
34510 "	12·23	15·12	26·49	1·0251	0·9812	8·97	7·27	1·70	0·652	0·465	0·150	31·73	.....	
34524 "	11·85	14·65	25·67	1·0400	0·9817	13·08	11·13	1·95	0·810	0·480	0·264	34·83	.....	
25892 "	11·46	14·18	24·85	1·0324	0·9822	9·72	9·05	0·67	0·533	0·384	0·119	31·97	.....	
34239	8·57	10 65	18 65	1·0660	0·9861	17·88	14·50	3·38	0·810	0·450	0·288	31·64	Present.	
34849 Labelled	9·57	11·87	20·81	1·0501	0·9847	14·01	13·02	0·99	0·660	0·405	0·204	32·16	.....	

34850 „	12·54	15·49	27·15	1·0130	0·9808	14·36	12·90	1·46	0·525	0·375	0·120	37·98	Present.	
34851 „	7·60	9·45	16·57	1·0762	0·9875	20·51	19·00	1·51	0·750	0·398	0·282	34·20	.....	
34860 „	12·23	15·12	26·49	1·0308	0·9812	10·41	8·69	1·75	0·637	0·495	0·114	33·15	.....	
34862 „	12·46	15·40	26·99	1·0466	0·9809	14·10	12·88	1·22	0·765	0·471	0·235	37·80	Present.	
Maximum	17·75	21·79	38·18	1·0762	0·9744	24·29	19·00	3·83	1·035	0·645	0·473	39·44	.....	
Minimum.	7·53	9·37	16·42	1·0002	0·9876	2·65	1·59	0·41	0·525	0·345	0·066	20·01	.....	
Spanish Port.....	17·13	21·07	36·90	1·0047	0·9746	7·294	5·260	2·034	0·427	0·285	0·114	39·52	.....	Thudichurn & Duprè—'Treatise on Wine'—Macmillan & Co., 1872. op. cit.
Cheap Port – Portugal.	16·48	20·24	35·47	1·0039	0·9754	6·727	4·220	2·507	0·414	0·268	0·119	37·18	.....	
Port Wine..	16·18	19·89	34·85	1·0088	0·9764	8·250	6·040	2·210	0·420	0·335	0·085	38·40	.....	Mean of 15 analyses. König. 'Chemie der Menschlichen Nahrungsund Genussmittel,' Band I, p. 1322.

APPENDIX K.

BULLETIN No. 161—FERTILIZERS AS SOLD.

Ottawa, September 3, 1908.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I have the honour to transmit a report upon 119 samples of Agricultural Fertilizers collected by our inspectors in the various districts of Canada.

The usual difficulties have been found in identifying these fertilizers with registered brands. While much might be done by greater care on the part of dealers who handle these goods, and of our inspectors who purchase them for analysis, I am convinced that until a more rational method of registration is enforced, the difficulty of identifying the article as sold will continue. This state of things is quite evidently disadvantageous to the purchaser of the fertilizer; and practically deprives him of legal redress.

Fifteen samples appear to represent unregistered brands. Six others are provisionally identified with registered standards, but the identification is doubtfully correct. Ninety-seven samples are apparently equal in value to the standard sample submitted under Sec. 3 of the Fertilizers Act, or to the guaranteed value, or within reasonable limits of such guarantee.

Three (3) samples show decided deficiency in fertilizing contents, not equalized in values by excess in other contents. These samples are :—

No. 31282	deficiency of about	3	per cent	potash		
29719	"	"	"	2	"	"
31300	"	"	"	2½	"	" phosphoric acid

In an appendix to this Bulletin I have arranged 18 samples of Standard Fertilizers, as placed on sale this year, but forwarded to the department too late to appear in the regular standard list, as printed in Bulletin No. 151, of April last.

I would respectfully draw attention to the need of improvement in our Fertilizer legislation; and I trust that the Bill which received first and second readings, in the Senate, in July last, will become law, and go far to render our check upon fertilizers as sold in Canada, a real safe-guarding of the purchaser.

I beg to recommend the publication of this report as Bulletin No. 161.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

FERTILIZERS AS SOLD

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Register Number.
1908.						
				DISTRICT OF NOVA SCOTIA		
May 15	Pacific Potato Special.	33675	E. M. Walker, Dartmouth, N.S.	American Agr. Chem. Co., New York.		2161
" 15	Imperial Superphosphate.	33676	A. L. Melvin & Co., Halifax, N.S.	Provincial Chemical Fertilizer Co., St. John, N.B.		2209
" 15	Ceres Brand.....	33677	Halifax Seed Store, Halifax, N.S.	Nova Scotia Fertilizer Co., Halifax, N.S.		2180
" 18	Basic Slag.....	33678	G. F. Roy, Kentville, N.S.	Leeds Phosphate Works, Leeds, England.		2227
" 18	Swift's Lowell Potato Manure.	33679	G. F. Roy, Kentville, N.S.	Swift's Lowell Fertilizer Co., Lowell, Mass.		2128
" 19	Six Per Cent Brand Potato Fertilizer	33680	Burgess & Co., Wolfville, N.S.	Bowker Fertilizer Co., Boston, Mass.		2200
" 19	Complete Manure for Potatoes, Roots and Vegetables.	33681	R. H. Foster, Wolfville, N.S.	Essex Fertilizer Co., Boston, Mass.		2140
" 19	Bradley's Fine Ground Bone.	33682	E. E. Archibald, Wolfville, N.S.	American Agr. Chem. Co., New York.		2146
" 21	Storckbridge Special Complete Manure.	33683	J. H. Kent & Co., Truro, N.S.	Bowker Fertilizer Co., Boston, Mass.		2191
" 21	Potato Manure...	33684	E. E. McNutt, Truro, N.S.	Pidgeon Fertilizer Co., Windsor, N.S.		2120
				DISTRICT OF PRINCE EDWARD ISLAND		
May 14	Animal Brand ...	31281	A. Horn & Co., Charlottetown.	Swift's Lowell Fertilizer Co., Boston, Mass.		2127
" 14	Potato Phosphate.	31282	A. Horn & Co., Charlottetown.	" "		2129
" 18	Ceres Superphosphate.	31283	R. E. Mutch, Charlottetown	Nova Scotia Fertilizer Co., Halifax, N.S.		2180
" 18	Potato Phosphate.	31284	R. E. Mutch, Charlottetown.	" "		2181
" 18	Ground Bone.....	31285	Pool & Thompson, Montague Bridge.	Swift's Lowell Fertilizer Co., Boston, Mass.		2132

Samples.	Results of Analysis. Nitrogen, p. c. Total including that of nitric acid or ammonia if present.	Nitrogen, p. c. Total calculated as ammonia.	Phosphoric Acid, p. c. Soluble in Water.	Phosphoric Acid, p. c. Reverted or Citrate Soluble.	Phosphoric Acid, p. c. Insoluble.	Phosphoric Acid, p. c. Total.	Phosphoric Acid, p. c. Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	Remarks and Opinion of the Chief Analyst.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	$ cts.	
—R. J. WAUGH, INSPECTOR.											
Guarantee	2 06	2 50	5 00	3 00	2 00	10 00	8 00	3 00	....	19 90	
Standard Bull. 151.	2 27	2 75	5 62	3 21	2 82	11 65	8 83	3 47	11 10	22 31	
As found	1 79	2 19	6 85	2 89	1 24	10 98	9 74	2 97	11 95	20 83	Up to guarantee.
Guarantee	2 80	3 40	....	....	....	....	10 30	2 40	....	23 25	
Standard Bull. 151.	2 52	3 06	6 75	3 18	2 12	12 05	9 93	....	8 90	22 86	
As found	1 53	1 85	7 80	2 58	1 02	11 40	10 38	1 89	12 85	19 60	Slightly below guarantee.
Guarantee	1 65	2 00	....	....	2 00	9 00	7 00	2 00	....	15 91	
Standard Bull. 151.	1 75	2 13	7 22	1 38	1 80	10 40	8 60	4 61	9 90	21 28	
As found	1 96	2 38	7 33	1 49	0 76	9 58	8 82	2 70	10 00	20 03	Up to guarantee.
Guarantee	....	....	....	....	....	....	....	....	....	....	
Standard Bull. 151.	....	....	....	13 35	7 00	20 35	13 35	....	0 55	16 79	
As found	....	....	....	12 00	5 30	17 30	12 00	....	....	14 79	Slightly below standard
Guarantee	1 65	2 00	....	....	....	8 00	7 00	4 00	....	17 61	sample.
Standard Bull. 151.	1 54	1 87	5 10	3 75	0 62	9 47	8 85	4 44	6 35	20 11	
As found	1 54	1 87	4 50	2 63	0 77	7 90	7 13	4 09	10 15	17 85	Up to guarantee.
Guarantee	0 82	1 00	....	....	....	7 00	6 00	6 00	....	15 69	
Standard Bull., 151.	0 84	1 02	5 70	1 85	1 45	9 00	7 55	6 14	10 15	18 31	
As found	0 85	1 04	4 88	2 54	1 46	8 88	7 42	6 23	9 50	18 18	"
Guarantee	3 29	4 00	....	....	1 00	7 00	6 00	10 00	....	28 09	
Standard Bull. 151.	3 61	4 39	4 42	2 75	2 25	9 42	7 17	10 35	6 30	31 63	
As found	3 15	3 71	4 18	3 27	0 90	8 35	7 45	10 11	6 15	29 70	"
Guarantee	2 50	3 00	....	....	....	21 23	....	....	....	....	
Standard Bull. 151.	2 91	3 54	....	19 50	7 00	26 50	19 50	....	5 75	33 44	
As found	2 42	2 94	....	17 70	9 40	27 10	17 70	....	9 70	30 42	Slightly below standard
Guarantee	3 29	4 00	....	....	....	7 00	6 00	10 00	....	28 09	sample.
Standard Bull. 151.	3 11	3 77	5 37	1 88	1 25	8 50	7 25	9 69	7 45	29 15	
As found	2 88	3 50	5 25	1 90	1 20	8 35	7 15	10 13	10 35	28 67	Up to guarantee.
Guarantee	1 65	2 00	....	....	....	9 00	7 00	5 00	....	18 91	
Standard Bull. 151.	2 03	2 45	5 80	0 35	1 55	7 70	6 15	5 31	9 10	20 02	
As found	1 50	1 82	6 15	1 21	0 44	7 80	7 36	5 07	11 90	19 01	"
—T. MOORE, INSPECTOR.											
Guarantee	2 47	3 00	....	....	....	10 00	8 00	4 00	....	21 80	
Standard Bull. 151.	2 55	3 09	5 32	4 48	0 95	10 75	9 80	4 19	9 30	24 46	
As found	2 14	2 60	7 20	2 13	1 67	11 00	9 33	3 91	11 75	22 57	Up to guarantee.
Guarantee	2 47	3 00	....	....	....	9 00	8 00	6 00	....	23 50	
Standard Bull. 151.	2 60	2 96	4 80	5 32	0 95	11 07	10 12	6 56	6 40	27 30	
As found	1 54	1 87	6 45	2 57	1 23	10 25	9 02	3 17	11 40	19 34	Below guarantee in
Guarantee	1 65	2 00	....	....	2 00	9 00	7 00	2 00	....	15 91	potash.
Standard Bull. 151.	1 75	2 13	7 22	1 38	1 80	10 40	8 60	4 61	9 90	21 28	
As found	3 15	3 82	7 92	1 36	0 62	9 90	9 28	2 78	14 25	24 68	Up to guarantee.
Guarantee	1 65	2 00	....	....	2 00	9 00	7 00	4 00	....	17 91	
Standard Bull. 151.	1 68	2 04	8 75	....	1 30	10 02	8 72	4 82	9 70	21 42	
As found	2 80	3 40	4 15	0 85	0 50	5 46	5 00	7 10	15 90	22 77	"
Guarantee	2 47	3 00	....	....	....	25 00	....	....	....	....	
Standard Bull. 151.	2 63	3 19	....	17 50	7 25	24 75	17 50	....	4 50	29 84	
As found	2 42	2 94	....	14 45	12 55	27 00	14 45	....	2 35	27 40	Slightly below standard sample in citrate soluble acid.

FERTILIZERS AS SOLD

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Register Number.
1908.						
			DISTRICT OF PRINCE EDWARD ISLAND.			
May 20	Potato Manure...	31286	Pool & Thompson, Montague Bridge.	Swift's Lowell Fertilizer Co., Boston, Mass.		2128
" 20	Bone Fertilizer...	31287	" " ..	" " ..		2126
" 26	Thomas Phosphate Powder.	31288	R. J. Holman & Co., Summerside.	Dearborn & Co., St. John.		
" 28	Fertilizer Tankage	31289	A. Dewar, Charlottetown.	Laing Packing & Provision Co., Ltd., Montreal.		2116
" 28	Superphosphate...	31290	Auld Bros., Charlottetown.	Thos. Vickers & Sons, Manchester.		
			DISTRICT OF NEW BRUNSWICK.			
May 12	Reid's Superphosphate of Lime.	29712	Thos. Reid, Parish of Simonds, St. John, Co., N.B.	Thos Reid, Parish of Simonds, St. John Co., N.B.		2189
" 14	Swift's Lowell PotatoPhosphate.	29713	P. Nase & Son, Ltd, 2-14 Main St., St. John, N.B.	Swift's Lowell Fertilizer Co., Boston, Mass.		2129
" 15	Bowker's Potato and Vegetable Phosphate.	29714	D. J. Seely & Son, Water St., St. John, N.B.	Bowker Fertilizer Co., Boston, Mass.		2194
" 21	New England Ground Bone.	29715	The Sussex Mercantile Co., Ltd, Sussex St., Kings, N.B.	New England Fertilizer Co., Boston, Mass.		2137
" 22	Pacific Potato Special.	29716	Toombs & Son, Main St., Moncton, N.B..	Am. Agr. Chem. Co., Boston, Mass.		2161
June 4	Bradley's XL Superphosphate.	29717	Henry E. Hill, King St., St. Stephen, N.B.	" " ..		2144
" 4	Imperial Superphosphate.	29718	F. E. Rose, King St., St. Stephen, N.B.	Provincial Chem. & Fertilizer Co., Ltd, St. John, N.B.		2209
" 6	Special Potato Phosphate.	29719	Jas. A. Bell, Queen St., Fredericton, N.B.	" " ..		2212
" 8	Read's Potash Manure.	29720	C. P. Phillips, Main Road, Woodstock, N.B.	American Agr. Chemical Co., New York.		2157
" 9	Bradley's High Grade with 10 per cent potash.	29721	James E. Porter & Son, Andover, Victoria Co., N.B.	" " ..		2151

Samples.	Results of Analysis.										Remarks and Opinion of the Chief Analyst.
	Nitrogen, p.c.		Phosphoric Acid, p.c.					Potash.	Moisture.	Relative value per ton of 2,000 lbs.	
	Total, including that of nitric acid or ammonia, if present.	Total calculated as ammonia.	Soluble in Water.	Reverted or Citrate Soluble.	Insoluble.	Total.	Total available.				
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	$ cts.	
—T. MOORE, INSPECTOR—*Concluded.*											
Guarantee	1·65	2·00				8·00	7·00	4·00		17 61	
Standard Bull. 151.	1·54	1·87	5·10	3·75	0·62	9·47	8·85	4·44	6·35	20 11	
As found	1·43	1·73	4·00	3·94	0·76	8·70	7·94	4·52	1·90	18 74	Up to guarantee.
Guarantee	1·65	2·00				9·00	8·00	3·00		17 38	
Standard Bull. 151.	2·07	2·52	5·00	3·63	0·87	9·50	8·63	3·66	4·75	20 54	
As found	1·47	1·79	4·30	4·37	0·60	9·27	8·67	3·54	7·60	18 39	" "
As found				12·49	3·66	16·45	12·49			14 84	Not registered.
Guarantee	7·66	9·31				10·46			10·60		
Standard Bull. 151.	7·55	9·18	5·00	2·50	2·95	10·45	7·50		10·00	33 83	
As found	6·38	7·75	0·35	10·53	1·07	11·95	10·88		6·00	32 74	Up to guarantee.
As found	0·18	0·22	17·25	0·93	0·27	18·45	18·18		12·50	22 41	Not registered.
—J. C. FERGUSON, INSPECTOR.											
Guarantee											
Standard Bull. 151.	0·69	0·83	2·37	3·20	4·35	9·92	5·57		16·55	10 02	
As found	3·81	4·62	1·91	4·03	3·54	9·48	5·94	2·51	17·90	23 31	Up to guarantee.
Guarantee	2·47	3·00				9·00	8·00	6·00		23 50	
Standard Bull. 151.	2·60	2·96	4·80	5·32	0·95	11·07	10·12	6·56	6·40	27 30	
As found	2·42	2·94	5·37	1·84	0·79	7·98	7·21	6·07	8·75	23 00	" "
Guarantee	1·65	2·00				9·00	8·00	2·00		16 71	
Standard Bull. 151.	1·68	2·04	6·12	2·81	2·77	11·70	8·93	2·10	9·60	19 08	
As found	1·89	2·30	6·73	2·47	1·73	10·93	9·20	3·06	13·15	20 71	" "
Guarantee	2·47	3·00				25·00					
Standard Bull. 151.	2·51	3·03		14·23	10·87	25·10	14·23		10·35	26 95	
As found	2·42	2·94		18·92	7·88	26·80	18·92		11·00	30 92	" "
Guarantee	2·06	2·50	5·00	3·00	2·00	10·00	8·00	3·00		19 90	
Standard Bull. 151.	2·27	2·75	5·62	3·21	2·82	11·65	8·83	3·47	11·10	22 31	
As found	1·71	2·07	5·35	2·88	2·47	10·70	8·23	3·03	13·85	19 17	" "
Guarantee	2·06	2·50	5·00	3·00	2·00	10·00	8·00	1·50		18 40	
Standard Bull. 151.	2·27	2·75	6·62	0·55	3·00	10·17	7·17	1·73	12·15	18 90	
As found	2·13	2·58	7·80	2·43	1·67	11·90	10·23	3·22	15·20	23 00	" "
Guarantee	2·80	3·40					10·30	2·40		23 25	
Standard Bull. 151.	2·52	3·06	6·75	3·18	2·12	12·05	9·93	2·06	8·90	22 86	
As found	2·31	2·80	4·25	4·03	1·27	9·55	8·28	3·13	7·25	20 90	Nearly up to guarantee.
Guarantee	2·55	3·10					8·15	7·20		24 81	
Standard Bull. 151.	2·31	2·81	4·67	2·46	0·87	8·00	7·13	7·37	9·30	23 80	
As found	1·52	1·85	6·95	2·53	1·07	10·55	9·48	4·90	9·25	21 51	Low in potash.
Guarantee	2·40	3·00	5·00	1·00	1·00	7·00	6·00	10·00		25 56	
Standard Bull. 151.	2·86	3·47	5·42	1·28	2·55	9·25	6·70	9·84	7·25	28 24	
As found	2·10	2·55	5·53	2·05	1·67	9·25	7·58	8·19	11·15	24 72	Up to guarantee.
Guarantee	2·40	3·00	5·00	1·00	1·00	7·00	6·00	10·00		25 56	
Standard Bull. 151.	2·69	3·26	5·17	2·15	2·10	9·42	7·32	9·84	8·55	28 19	
As found	2·37	2·87	4·93	3·60	1·42	9·95	8·53	9·38	10·60	27 68	"

FERTILIZERS AS SOLD

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Register Number.
1908.						
				DISTRICT OF QUEBEC		
May 11	Defiance Fertilizer	26413	Nap. Marcotte, Portneuf.	P. T. Legaré, Quebec.	Inspector did not identify with standards. The identification given is therefore subject to question.—A. McG.	2095
" 12	Complete Manure.	26414	Juste Brière, Portneuf.	Julien & Vézina, Quebec.	.....	.....
" 13	Victor.....	26432	Joseph Dagenais, Cap Sante.	P. T. Legaré, Quebec.	.....	2226
" 26	Complete Fertilizer.	26463	Philias Lehoux, St. Elzéar, Beauce.	Albert Landry, St. Elzéar, Beauce.	.....	2094
" 26	Standard Bone Potash.	26464	" " ..	Joseph Guay, St. Elzéar, Beauce.	.....	2072
" 26	Bilston Basic Phosphate.	26465	" " ..	Samuel Vachon, St. Elzéar, Beauce.	Identification uncertain.	2216
" 26	Capelton Chemical Fertilizer.	26466	Edouard Gagnon, Fils, St. Marie, Beauce.	Clovis Mercier, St. Marie, Beauce.	" " ..	2225
" 27	Homestead Corn and Grain Producer.	26467	Jean Sylvain, St. Elzéar, Beauce.	Jos. Guay, St. Elzéar, Beauce.	.....	2112
" 27	Capelton Chemical Fertilizer.	26468	" " ..	Albert Landry, St. Elzéar, Beauce.	Identification uncertain.	2225
" 27	Fruit and Vine...	26470	Appolinaire Drouin, St. Elzéar, Beauce.	George Gagnon, St. Marie, Beauce.	.....	2093
				DISTRICT OF ST. HYACINTHE		
May 11	Bowker's Potash Bone Phosphate.	140	A. C. Trempe, Sorel.	Bowker Fertilizer Co., Boston.	.....	2199
" 11	Vermont Phosphate.	141	" " ..	" " ..	.....	2193
" 13	Victor.....	142	Nap. Quintin, Iberville.	Capelton Chem. & Fertilizer Co., Buckingham.	.....	2226
" 14	Bradley's Eclipse Phosphate for all Crops.	143	Chs. Payne, Granby.	The Am. Agr. & Chem. Co., New York.	.....	2147

Samples.	Results of Analysis. Nitrogen, p.c. Total including that of nitric acid or ammonia if present.	Nitrogen, p.c. Total calculated as ammonia.	Phosphoric acid. p.c. Soluble in Water.	Phosphoric acid. p.c. Reverted or Citrate Soluble.	Phosphoric acid. p.c. Insoluble.	Phosphoric acid. p.c. Total.	Phosphoric acid. p.c. Total available.	Potash.	Water.	Relative value per ton of 2,000 lbs.	Remarks and Opinion of the Chief Analyst.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	$ cts.	
—E. BÉLAND, INSPECTOR.											
Guarantee	1·65	2·00	6·00	2·00	1·00	9·00	8·00	2·00	.....	17 31	
Standard Bull. 151	1·96	2 38	5·37	3·71	1·67	9·75	8 08	2·31	13·35	20 00	
As found	1·79	2·18	6·95	1·80	1·20	9 95	8·75	4·38	13·10	21 15	Up to guarantee, provided that identification is correct.
As found	2·13	2·40	3·70	5·13	2·92	11·75	8·83	3·45	13·20	21 65	Apparently not registered.
.....	1·65	2·00	.....	.....	.....	7 00	.....	3·00	.....	.....	
.....	2·69	3·26	6·65	1·12	1·35	9·12	7·77	3·70	6·20	22 46	
As found	1·23	1·50	2·00	4 40	1·15	7·55	6·40	2 64	4.80	14 41	Up to guarantee.
Guarantee	1·65	2 00	6·00	2·00	1 00	9·00	8 00	4 00	.....	19 31	
Standard Bull. 151.	1·88	2·28	5·17	3·56	2·37	11·10	8·73	4 32	12·15	21 54	
As found	1·54	1 87	5·05	3 40	2·70	11·25	8·45	3 82	12·65	19 67	"
.....	1·65	2·00	6·00	2·00	1·00	9 00	8·00	4·00	.....	19 31	
.....	1·79	2·18	5 37	3·85	1·80	11 02	9·22	4 82	11·20	22 13	
As found	1·60	1·94	4 83	3·72	2·70	11 25	8·58	3·82	11·25	19 96	"
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Standard Bull. 151.	.....	.....	.....	14·25	6·10	20·35	14·25	.....	.....	17 57	
As found	.....	.....	.....	15·21	5·84	21 05	15·21	.....	.....	18 48	Apparently up to standard sample.
Guarantee	1·65	2·00	.....	.....	.....	6 to 7	.....	2 to 3	.....	.....	
Standard Bull. 151	2·77	3·66	5 00	3·45	1·17	9 62	8·45	2·89	5·40	22 45	
As found	0·57	1·17	2 40	3 69	1·11	7·20	6 09	3·61	3 25	14 18	Up to guarantee.
.....	1 65	2·00	6·00	2 00	1·00	9·00	8·00	2·00	.....	17 31	
.....	2·66	2 87	6 17	3·53	2·30	12·00	9·70	2·24	9·45	23 26	
As found	1 54	1 87	3·60	4·99	2·91	11·50	8·59	1·95	12·50	17·87	"
Guarantee	1 65	2·00	.....	.....	.....	6 to 7	.....	2 to 3	.....	.....	
Standard Bull. 151	2·77	3 66	5 00	3·45	1·17	9 62	8 45	2 89	5 40	22 45	
As found	1·19	1·45	1·65	4·58	1·30	7·53	6·23	3·59	3 70	15 04	"
.....	1·65	2·00	6·00	2 00	1·00	9 00	8·00	10·00	.....	25 31	
.....	1·79	2 13	4 65	3 03	2·07	9·75	7·68	10 33	12·35	25 55	
As found	1·65	2·00	5·88	2 48	2·84	11·20	8·36	8·20	12·90	24·45	"
—J. C. ROULEAU, INSPECTOR.											
Guarantee	0·82	1·00	.....	.....	.....	8·00	6 00	2·00	.....	11 99	
Standard Bull. 151	0·98	1 19	3·42	4·38	2·00	9 80	7 80	2·20	14·25	15 65	
As found	1·36	1 65	7·90	2·27	0·91	11·08	10·17	2·17	16·15	19 04	Up to guarantee.
Guarantee	2 47	3·00	.....	.....	.....	10·00	8·00	4·00	.....	21 80	
Standard Bull. 151	2·65	3 11	4·92	3·13	2·35	10·40	8·05	4 82	12 80	23 88	
As found	2·60	3·16	6·10	2·90	1·40	10·40	9·00	4·65	14·40	24 42	" "
Guarantee	1·65	2·00	.....	.....	.....	7 00	.....	3·00	.....	.....	
Standard Bull. 151.	2·69	3 26	6·65	1·12	1·35	9·12	7 77	3 70	6·20	22 46	
As found	2·21	2·69	1·75	4·14	1·16	7·05	5·89	3 12	4·85	17 63	Apparently up to guarantee.
Guarantee	1·03	1·25	6·00	2·00	2·00	10·00	8·00	2·00	.....	15 50	
Standard Bull. 151	1·31	1·60	6·12	2·73	2·25	11·10	8·85	2 20	6 15	17 68	
As found	0 87	1·05	5·35	4·46	1·81	11·62	9·81	1·74	10·30	16 57	Up to guarantee.

FERTILIZERS AS SOLD

Date of collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Register Number.
1908.						
				DISTRICT OF ST. HYACINTHE		
May 15	Potato and Vegetable Phosphate.	144	P. A. Ruiter, Cowansville.	Bowker Fertilizer Co., Boston.		2194
" 15	Corn Phosphate..	145	" " ..	" " .		2195
" 18	Superphosphate with Potash.	146	W. M. Taylor, Richmond.	Bowker Fertilizer Co., Boston.		2202
" 19	Alkaline Bone with Potash.	147	Osgood & Sons, Cookshire.	The Am. Agr. & Chem. Co., New York.		2149
" 20	Sure Crop Bone Phosphate.	148	B. J. Smith, Coaticook.	Bowker Fertilizer Co., Boston.		2198
" 21	Sure Crop Bone Phosphate	149	Antoine Tétrault, Ste. Madelaine.	" " ..		2198
				DISTRICT OF MONTREAL		
May 19	Farmers' Choice..	32957	Thomas Coglan d, Herdman, Que.	Buffalo Fertilizer Co., Buffalo, N.Y.		2186
" 19	Corn Phosphate...	32958	" " ..	" " ..		2195
" 20	Kainit..	32959	Wm Ewing & Co., 142 McGill St., Montreal.	Taylor, N.Y.		
" 20	Sure Growth.	32960	" " ..	W. A. Freeman Co., Ltd.		2105
" 20	Bone and Potash.	32961	Wm Ewing & Co., 142 McGill St., Montreal.	Wm. A. Freeman Co., Ltd.		2101
" 20	Crocker's Complete Manure.	32962	Wm Rennie Co., 190, McGill St., Montreal.	Am. Agr. Chem. Co., Buffalo, Sales Departement.		2090
" 21	Standard Tankage	32963	Wm Cooper & Co., 338 St. James St., Montreal.	Laing P. & P. Co., Ltd, Montreal.		2116
June 1	Eureka..	32964	M. O. Ferland, Berthierville, Q e.	Capelton Chem. & Fert. Co.		2222
" 1	Victor..	32965	" " ..	" " .		2226
" 1	Celery, Onion and Truck.	32966	" " ..	Am. Agr. Chem. Co.		2218

Samples.	Results of Analysis.										Remarks and Opinion of the Chief Analyst.
	Nitrogen, p.c.		Phosphoric Acid, p.c.					Potash.	Moisture.	Relative value per ton of 2,000 lbs.	
	Total including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in Water.	Reverted or Citrate Soluble.	Insoluble.	Total.	Total available.				
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	$ cts.	
—J. C. ROULEAU, INSPECTOR—*Concluded.*											
Guarantee	1·65	2·00	....	....	....	9·00	8·00	2·00	....	16 71	
Standard Bull. 151	1·68	2·04	6·12	2·81	2·77	11·70	8·93	2·10	9·60	19 08	
As found	1·54	1·87	7·10	2·29	1·39	10·78	9·39	1·64	12·85	18 33	Up to guarantee.
Guarantee	1·65	2·00	....	....	....	9·00	8·00	2·00	....	16 71	
Standard Bull. 151	1·74	2·11	5·92	2·86	2·37	11·15	8·78	2·43	11·30	19 31	
As found	1·67	2·02	5·97	3·04	1·34	10·35	9·01	1·82	11·75	18 41	" "
Guarantee	....	....	....	....	....	11·00	10·00	2·00	....	13 30	
Standard Bull. 151	0·78	0·96	5·57	3·98	3·50	13·05	9·55	2·10	10·60	16 86	
As found	0·15	0·91	3·30	8·35	1·75	13·40	11·65	2·02	12·75	16 20	" "
Guarantee	....	....	5·00	5·00	1·00	12·00	11·00	2·00	....	13 80	
Standard Bull. 151	....	....	6·92	5·58	1·80	14·30	12·50	1·98	8·45	16 96	
As found	0·27	0·32	6·80	4·25	1·90	12·95	11·05	1·68	10·50	16 03	" "
Guarantee	0·82	1·00	....	....	....	9·00	8·00	2·00	....	13 89	
Standard Bull. 151	0·91	1·10	5·75	3·13	1·57	10·45	8·88	1·95	11·15	15 86	
As found	1·26	1·53	5·60	4·28	1·35	11·23	9·88	1·77	14·40	17 89	" "
Guarantee	0·82	1·00	....	....	....	9·00	8·00	2·00	....	13 89	
Standard Bull. 151	0·91	1·10	5·75	3·13	1·57	10·45	8·88	1·95	11·15	15 86	
As found	1·02	1·24	3·63	6·28	2·64	12·55	9·91	1·20	7·20	16 72	" "
—J. J. COSTIGAN, INSPECTOR.											
Guarantee	0·82	1·00	....	....	....	....	8·00	5·00	....	16 59	
Standard Bull. 151	1·01	1·22	5·75	0·80	3·30	9·85	6·55	6·18	14·40	18 38	
As found	0·98	1·19	1·62	2·05	4·05	10·72	6·67	4·12	15·55	16 47	Up to guarantee.
Guarantee	1·65	2·00	....	....	....	9·00	8·00	2·00	....	16 71	
Standard Bull. 151	1·74	2·11	5·92	2·86	2·37	11·15	8·78	2·43	11·30	19 31	
As found	1·48	1·80	7·53	2·41	1·26	11·20	9·94	2·37	10·00	19 47	" "
....	....	....	....	....	....	....	....	....	....	....	
....	....	....	....	....	....	....	....	....	....	....	
....	....	....	....	....	....	....	....	24·36	....	24 36	Not registered.
Guarantee	2·88	3·50	....	....	....	8·00	....	3·00	....	....	
Standard Bull. 151	3·43	4·16	0·47	5·93	2·90	9·30	6·40	4·61	6·95	24 23	
As found	3·19	3·88	3·39	4·46	2·45	10·30	7·85	5·11	11·10	25 67	Up to guarantee.
Guarantee	1·65	2·00	....	....	....	9·00	....	6·00	....	....	
Standard Bull. 151	3·02	3·67	1·22	4·95	2·95	9·12	6·17	6·29	10·10	24 35	
As found	3·56	4·20	0·95	7·46	2·36	10·77	8·41	6·46	13·90	28 62	Up to guarantee.
Guarantee	0·82	1·00	6·00	2·00	1·00	9·00	8·00	4·00	....	16 49	
Standard Bull. 151	0·95	1·16	5·50	1·42	2·80	9·72	6·92	4·40	12·15	16 63	
As found	0·91	1·11	7·30	2·06	1·24	10·60	9·36	4·28	12·40	18 87	" "
Guarantee	7·66	9·31	....	....	....	10·46	....	....	10·60	....	
Standard Bull. 151	7·56	9·18	5·00	2·50	2·95	10·45	7·50	....	10·00	33 83	
As found	6·91	8·43	0·60	11·17	1·55	13·32	11·77	....	8·65	37 07	" "
Guarantee	2·47	3·00	....	....	....	4·00	....	4·00	....	....	
Standard Bull. 151	2·27	2·75	1·40	2·50	2·50	6·40	3·90	4·65	5·90	16 95	
As found	2·10	2·55	4·48	1·73	1·36	7·57	6·21	4·28	4·75	19 12	" "
Guarantee	1·65	2·00	....	....	....	7·00	....	3·00	....	....	
Standard Bull. 151	2·69	3·26	6·65	1·12	1·35	9·12	7·77	3·70	6·20	22 46	
As found	1·29	1·56	5·87	1·81	1·67	9·35	7·68	3·41	6·80	17 33	" "
Guarantee	4·11	5·00	....	....	....	4·00	....	12·00	....	....	
Standard Bull. 151	4·07	4·95	3·67	1·83	1·00	6·50	5·50	12·06	9·45	32 62	
As found	4·03	4·90	3·87	2·31	0·97	7·15	6·18	11·79	11·00	32 97	" "

FERTILIZERS AS SOLD

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Register Number.
1908.						
						DISTRICT OF OTTAWA
May 18	Victor Complete Fertilizer.	34189	Kenneth McDonald & Sons, Market Square, Ottawa, Ont.	Capelton Chem. & Fertilizer Co., Buckingham, Que.		2226
" 19	Royal Canadian...	22634	" " ..	" " ..		2224
" 19	Alberts Thomas Phosphate Powder.	22635	Wm Gray, Market Square Ottawa, Ont.	Works H. & E. Albert, London.		2109
" 19	Fine Ground Bone	22636	Graham Bros., Sparks St. Ottawa, Ont.	Am. Agr. Chem. Co., N.Y.		2170
" 19	Alberts Horticultural Manure.	22637	" " ..	Chem. Works late H. & E. Albert, Rhine, Germany.		2111
" 28	New Method.....	22638	H. Brown & Sons, Brockville, Ont.	The Am. Agr. Chem. Co., N.Y.		2083
" 28	Complete Manure.	22639	" " ..	" " ..		2085
" 28	Sea Fowl Guano..	22640	" " ..	" " ..		2084
" 28	Read's Superphosphate.	22641	A. E. Cameron, Brockville, Ont.	The American Agr. Chem. Co., New York.		2152
" 29	Watch Em Grow .	22642	The Standard Fert. and Chem. Co., Smith's Falls, Ont.	The Standard Fert. & Chem. Co., Smith's Falls, Ont.		2115
						DISTRICT OF KINGSTON
May 12	High Grade Potash Compound.	35247	Earl Spencer, Picton.	American Agr. Chem. Co., Buffalo, N.Y.		2082
" 12	Bradley's B. D. Sea Fowl Guano.	35248	" " ..	" " ..		2084
" 12	Bradley's Complete Manure for Potatoes and Vegetables.	35249	" " ..	" " ..		2085
" 14	Sure Growth Manure.	35250	D. Denton, King St., Cobourg.	W. A. Freeman Co., Ltd., Hamilton.		2105
" 14	Potato Manure...	35251	Thompson, Macdonald Co., Ltd, Division St., Cobourg.	" " ..		2104

Sample.	Results of Analysis.										Remarks and Opinion of the Chief Analyst.
	Nitrogen, p.c.		Phosphoric Acid, p.c.					Potash.	Moisture.	Relative value per ton of 2,000 lbs.	
	Total including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in Water.	Reverted or Citrate Soluble.	Insoluble.	Total.	Total available.				
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	$ cts.	
—J. A. RICKEY, INSPECTOR.											
Guarantee	1 65	2 00				7 00		3 00			
Standard Bull. 151.	2 69	3 26	6 65	1 12	1 35	9 12	7 77	3 70	6 20	22 46	
As found	1 57	1 90	2 40	2 95	1 57	6 92	5 35	3 68	5 35	15 61	Up to guarantee.
Guarantee	3 20	4 00				9 00		5 00			
Standard Bull. 151.	4 12	5 00	9 65	0 17	1 30	11 12	9 82	6 27	10 15	32 44	
As found	3 05	3 71	8 25	2 18	0 44	10 87	10 43	4 16	6 75	26 97	Nearly up to guarantee.
Guarantee						17 00					
Standard Bull. 151.				13 00	5 25	18 25	13 00		trace	15 88	
As found				13 25	3 86	17 11	13 25			15 73	Up to guarantee.
Guarantee	2 50	3 00				21 00					
Standard Bull. 151.	2 38	2 89		14 93	9 82	24 75	14 93		5 15	27 46	
As found	2 38	2 89		14 35	8 20	22 55	14 35		3 35	26 34	" "
Guarantee	11 90	14 45	11 10					15 16		68 94	
Standard Bull. 151.	12 07	14 65	11 10	none	trace	11 10	11 10	15 25	13 95	69 61	
As found	11 19	13 58	12 40	0 94	0 33	13 67	13 34	13 40	5 10	67 16	" "
Guarantee	0 82	1 00	6 00	2 00	1 00	9 00	8 00	2 00		14 49	
Standard Bull. 151.	2 10	2 55	5 00	1 97	3 00	9 97	6 97	2 10	9 95	18 31	
As found	0 88	1 07	6 85	1 35	1 65	9 85	8 20	2 14	12 65	15 33	" "
Guarantee	3 29	4 00	6 00	2 00	1 00	9 00	8 00	7 00		27 89	
Standard Bull. 151.	3 36	4 08	5 50	2 82	1 75	10 07	8 32	6 89	10 25	25 84	
As found	3 36	4 08	4 05	4 98	2 72	11 75	9 03	5 77	11 40	28 35	" "
Guarantee	2 06	2 50	6 00	2 00	1 00	9 00	8 00	1 50		18 20	
Standard Bull. 151.	2 25	2 74	5 25	2 40	2 75	10 40	7 65	2 29	10 35	19 71	
As found	2 04	2 48	4 70	3 74	2 99	11 43	8 44	1 81	9 90	19 40	" "
Guarantee	0 82	1 00	5 00	3 00	2 00	10 00	8 00	4 00		16 69	
Standard Bull. 151.	1 16	1 41	5 42	2 71	2 37	10 50	8 13	5 44	6 55	19 58	
As found	1 05	1 28	7 70	1 95	0 90	10 55	9 65	3 33	12 90	18 56	" "
Guarantee	3 29	4 00					9 00	8 00		29 08	
Standard Bull. 151.	4 02	4 88	11 00	0 85	1 55	13 40	11 85	7 43	6 70	35 70	
As found	4 03	4 90	10 35	1 33	0 72	12 40	11 68	6 36	10 40	34 16	" "
—J. HOGAN, INSPECTOR.											
Guarantee	1 65	2 00	6 00	2 00	1 00	9 00	8 00	10 00		25 31	
Standard Bull. 151.	2 10	2 55	5 25	1 75	2 50	9 50	7 00	9 96	12 05	26 08	
As found	1 58	1 92	6 93	1 97	1 35	10 25	8 90	9 82	11 85	26 08	Up to guarantee.
Guarantee	2 06	2 50	6 00	2 00	1 00	9 00	8 00	1 50		18 20	
Standard Bull. 151.	2 25	2 74	5 25	2 40	2 75	10 40	7 65	2 29	10 35	19 71	
As found	3 05	3 71	5 20	4 12	1 91	11 23	9 32	5 83	11 85	27 54	" "
Guarantee	3 29	4 00	6 00	2 00	1 00	9 00	8 00	7 00		27 89	
Standard Bull. 151.	3 36	4 08	5 50	2 82	1 75	10 07	8 32	6 89	10 25	28 54	
As found	3 39	4 11	5 15	4 12	1 53	10 80	9 27	7 50	12 05	30 20	" "
Guarantee	2 88	3 50				8 00		3 00			
Standard Bull. 151.	3 43	4 16	0 47	5 93	2 90	9 30	6 40	4 61	6 95	24 23	
As found	2 48	3 01	1 55	5 75	3 85	11 15	7 30	2 87	10 30	20 64	Nearly up to guarantee.
Guarantee	2 47	3 00				8 00		5 00			
Standard Bull. 151.	3 05	3 71	0 87	5 33	3 35	9 55	6 20	5 96	7 45	24 24	
As found	2 76	3 35	1 20	6 16	3 47	10 83	7 36	6 28	8 65	24 86	Up to guarantee.

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FERTILIZERS AS SOLD

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Register Number.
1908.						
			DISTRICT OF KINGSTON			
May 14	Lawn Fertilizer	35252	Thompson, Macdonald Co., Ltd, Division St., Cobourg.	W. A. Freeman Co., Ltd., Hamilton.		2205
" 14	Bone and Potash	35253	" "	" "		2101
			DISTRICT OF TORONTO			
May 13	Crocker's Best Potash Fertilizer.	35114	L. H. Weaver, Dunnville.	American Agr. Chem. Co., Buffalo, N.Y.		2089
" 14	Crocker's Wheat and Corn Fertilizer.	35115	Thos Wigg, Cayuga.	" "		2087
" 15	Crocker's Complete Manure.	35116	R. Moore & Son, Welland.	" "		2090
" 15	Crocker's New York Special Phosphate.	35117	John Spencer, Port Colbourne.	" "		2086
" 16	Bradley's B.D. Sea Fowl Guano.	35118	Titterington Bros., St. Catharines.	" "		2084
" 20	Pure Ground Bone	35119	H. St. Clair Fisher, Queenston.	" "	Uncertain identification.	2146 2163 2170
" 20	Celery and Potato Special.	35120	C. Field, Niagara on the Lake, P O.	Buffalo Fert. Co., Buffalo, N.Y.		2188
" 20	Farmers' Choice	35121	" "	" "		2186
" 22	Celery and Early Vegetable Manure.	35122	W. A. Freeman & Co. Ltd, 57 Ferguson ave., South Hamilton.	W. A. Freeman & Co., Ltd, 57 Ferguson ave., South Hamilton.		2103
" 23	Potato and Truck Manure.	35123	P. A. Bart, Oakville, Ont.	International Seed Co., Rochester, N.Y.		2067
			DISTRICT OF LONDON			
May 26	Queen City Fertilizer.	30925	Vedien & Co., Flour & Feed Store.	Steel, Briggs & Co., Toronto.		

Samples.	Results of analysis. Nitrogen, p.c. Total, including that of nitric acid or ammonia if present.	Nitrogen, p.c. Total calculated as ammonia.	Phosphoric Acid, p.c. Soluble in water.	Phosphoric Acid, p.c. Reverted or Citrate Soluble.	Phosphoric Acid, p.c. Insoluble.	Phosphoric Acid, p.c. Total.	Phosphoric Acid, p.c. Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	Remarks and Opinion of the Chief Analyst.
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	$ cts.	
—J. HOGAN, INSPECTOR—*Concluded.*											
Guarantee		3 00				9 00		4 00			
Standard	1 74	2 11	2 15	4 29	6 07	12 50	6 43	5 21	6 85	20 24	
As found	2 30	2 79	3 83	4 50	3 02	11 35	8 33	6 05	10 35	21 92	Up to guarantee.
Guarantee	1 65	2 00				9 00		6 00			
Standard Bull. 151.	3 02	3 67	1 22	4 95	2 95	9 12	6 17	6 29	10 10	24 35	
As found	2 95	3 59	1 25	5 83	2 82	9 90	7 08	4 86	9 70	23 65	Nearly up to standard.
—H. J. DAGER, INSPECTOR.											
Guarantee	1 65	2 00	6 00	2 00	1 00	9 00	8 00	10 00		25 31	
Standard Bull. 151.	1 75	2 13	5 25	2 92	2 20	10 39	8 17	10 00	12 25	26 12	
As found	1 69	2 06	7 62	1 47	1 51	10 60	9 09	7 98	12 05	24 94	Up to guarantee.
Guarantee	2 00	2 50	6 00	2 00	1 00	9 00	8 00	1 50		18 20	
Standard Bull. 151.	2 41	2 92	5 00	3 38	3 12	11 50	8 38	2 02	10 15	20 87	
As found	2 00	2 43	5 50	4 03	2 50	12 03	9 53	7 40	12 40	25 98	"
Guarantee	0 82	1 00	6 00	2 00	1 00	9 00	8 00	4 00		16 49	
Standard Bull. 151.	0 95	1 16	5 50	1 42	2 80	9 72	6 92	4 40	12 15	16 63	
As found	0 70	0 85	9 50	2 46	1 24	12 90	11 66	4 37	10 40	20 90	"
Guarantee			8 00	2 00	1 00	11 00	10 00	8 00		20 10	
Standard Bull. 151.	0 31	0 37	9 50	0 25	1 25	11 00	9 75	7 74	10 05	20 84	
As found	0 21	0 26	8 13	3 52	0 85	12 50	11 65	7 68	11 75	22 28	"
Guarantee	2 06	2 50	6 00	2 00	1 00	9 00	8 00	1 50		18 20	
Standard Bull. 151.	2 25	2 74	5 25	2 40	2 75	10 40	7 65	2 29	10 35	19 71	
As found	1 93	2 35	4 30	4 31	3 49	12 10	8 61	1 89	9 65	19 40	"
Guarantee						21 23					
Standard Bull. 151.											
As found	2 30	2 79		10 00	10 35	20 35	10 00		4 15	21 41	"
Guarantee	1 65	2 00					8 00	10 00		24 41	
Standard Bull. 151.	1 72	2 09	4 62	1 40	3 65	9 67	6 02	10 81	13 60	24 84	
As found	1 76	2 14	5 10	3 82	3 88	12 80	8 92	7 60	10 00	25 07	"
Guarantee	0 82	1 00					8 00	5 10		16 59	
Standard Bull. 151.	1 01	1 22	5 75	0 80	3 30	9 85	6 55	6 18	14 40	18 38	
As found	1 04	1 26	6 15	2 02	4 01	12 18	8 17	4 28	12 50	18 62	"
Guarantee	4 12	5 00				9 00		5 00			
Standard Bull. 151.	5 50	6 68	0 85	6 03	2 37	9 25	6 88	4 96	9 15	32 02	
As found	4 45	5 44	trace	10 91	1 19	12 10	10 91	6 58	12 80	34 07	Up to standard.
Guarantee	1 25	1 50	6 00	2 00	1 00	9 00	8 00	7 00		20 95	
Standard Bull. 151.	2 10	2 55	5 00	2 88	2 37	10 25	7 88	7 26	11 40	24 28	
As found	1 23	1 50	4 70	4 20	1 50	10 40	8 90	4 96	17 05	19 85	Nearly up to guarantee.
—T. A. KIDD, INSPECTOR.											
As found	2 55	3 15	1 75	6 23	2 07	10 05	7 98	3 18	14 00	21 42	Not registered.

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FERTILIZERS AS SOLD

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Register Number.
1908.						
				DISTRICT OF WINDSOR		
May 16	Fertilizer	34547	J. G. Eidt, Berlin...	W. A. Freeman, Hamilton.	... .	2103
June 9	"	34555	J. B. Hay, Brantford	Am. Agr. Chem. Co., N.Y.	Identification uncertain.	.....
" 9	Bone Meal.....	34573	Darch & Hunter, London.	Michigan Carbon Works, Detroit.	....	2244
				DISTRICT OF MANITOBA		
June 10	Fertilizer..... .	33150	The Steele - Briggs Seed Co., Ltd, Winnipeg.	The Steele - Briggs Seed Co., Ltd., Toronto, Hamilton & Winnipeg.	... .	
" 10	Lawn Fertilizer...	33151	Wm Rennie & Co., Ltd., Winnipeg.	Wm Rennie & Co., Ltd., Toronto.	....	
" 11	Soda Nitrate.....	33152	The Bole Drug Co., Winnipeg.	Not given.....	....	2056
" 12	Tankage Fertilizer	33153	Gallagher, Holman & Lafrance, Winnipeg.	Gallagher, Holman & Lafrance, Winnipeg	....	.....
" 12	Blood Fertilizer...	33154	" " ..	" " ..	....	.....
" 19	Unground Tankage.	33155	J. F. Griffin & Co., Winnipeg.	J. F. Griffin & Co., Winnipeg.	.. ..	.....
" 23	Lawn Fertilizer. .	33156	A. E. Mackenzie & Co., Ltd, Brandon.	Dom. Fish Co., Westselkirk.	.....	.... .
				DISTRICT OF CALGARY		
June 24	Fertilizer, Blood & Bone.	28955	J. F. Griffin & Co., Calgary.	J. T. Griffin & Co., Winnipeg.	....	....
				DISTRICT OF VANCOUVER		
May 15	Fertilizer "B" Grade.	34295	Brackman & Ker, Vancouver.	Victoria Chem. Co., Victoria.	....	2233
" 16	Bone Meal.....	34296	M. J. Henry, Vancouver.	Portland Seed Co., Portland, Oregon.	....	2052
" 16	Nitrate of Soda...	34297	" " ..	Victoria Chem. Co., Victoria.	.....	2237

Samples.	Results of Analysis. Nitrogen, p.c. Total, including that of nitric acid or ammonia if present.	Nitrogen, p.c. Total calculated as ammonia.	Phosphoric Acid, p.c. Soluble in Water.	Phosphoric Acid, p.c. Reverted or Citrate Soluble.	Phosphoric Acid, p.c. Insoluble.	Phosphoric Acid, p.c. Total.	Phosphoric Acid, p.c. Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	Remarks and Opinion of the Chief Analyst.
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	$ cts.	
—J. TALBOT, INSPECTOR.											
Guarantee	4·12	5·00				9·00		5·00			
Standard Bull. 151	5·50	6·68	0·85	6·03	2·37	9·25	6·88	4·96	9·15	32·02	
As found	4·35	5·29	2·05	4·29	1·81	8·15	6·34	6·89	10·60	29·40	Up to guarantee.
Guarantee											
Standard Bull. 151											Probably registered but not certainly identifiable.
As found	8·62	10·47	trace	1·79	0·29	2·08	1·79	6·50	8·25	37·86	
Guarantee		1·50					25·00			31·47	
Standard Bull. 151	1·22	1·48		16·75	14·50	31·25	16·75		1·50	26·68	
As found	1·53	1·85		19·90	12·30	32·20	19·90		2·45	30·48	Up to guarantee.
—A.-E. LARIVIERE, INSPECTOR.											
As found	3·39	4·11	1·30	2·81	3·52	7·63	4·11	6·83	5·95	24·06	Cannot be identified with any standard, and appears to be unregistered.
As found	1·33	1·62	trace	9·91	2·87	12·78	9·91	0·60	1·75	16·88	" "
Guarantee	14·82	18·00								50·39	
Standard Bull. 151	11·42	17·60							1·00	49·03	Identification doubtful.
As found	10·25	12·44							0·50	34·85	Probably unregistered.
As found	4·00	4·86	0·50	12·95	1·70	15·15	13·45		16·25	28·16	Not registered.
As found	10·86	13·19		2·26	0·35	2·61	2·26		20·82	37·34	"
As found	6·16	7·48	0·25	11·83	3·37	15·45	12·08		6·85	34·04	"
As found	6·51	7·91	trace	5·07	4·66	9·73	5·07	0·90	11·99	30·00	"
—R. W. FLETCHER, INSPECTOR.											
As found	6·23	7·57		12·63	3·57	16·20	12·63		5·75	35·00	Not registered.
—J. F. POWER, INSPECTOR.											
Guarantee	3·50					9·00		11·00			
Standard Bull. 151	2·53	3·08	7·52	0·56	0·42	8·50	8·08	14·06	12·60	32·43	
As found	0·50	0·61	11·70	0·34	0·29	12·33	12·04	11·73	8·90	28·03	Up to guarantee.
Guarantee	3·33	4·03				21·12	15·95			29·75	
Standard Bull. 151	3·50	4·25			5·87	21·00	15·13		6·05	29·60	
As found	3·32	4·03		14·65	8·45	23·10	14·65		5·10	29·27	" "
Guarantee	16·00									54·40	
Standard Bull. 151	12·80	15·54							0·75	43·52	Up to standard.
As found	13·57	16·48							0·60	46·14	

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FERTILIZERS AS SOLD

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Register Number.
1908.						
			DISTRICT OF VANCOUVER			
May 16	Muriate of Potash.	34298	M. J. Henry Vancouver.	Victoria Chem. Co., Victoria.		2239
" 16	Fertilizer "B" Grade.	34299	Wm Rennie, Vancouver.	" "		2233
" 16	Bone Meal	34300	" "	Portland Seed Co., Portland, Oreg.		2052
" 18	"	34301	Brackman & Ker, Vancouver.	Lilly & Co., Seattle		2229
" 18	Fertilizer "B" Grade.	34302	" "	Victoria Chem. Co., Victoria.		2233
" 18	Fish Guano	34303	" "	Fraser River Fish & Guano Co., Vancouver.		2054
" 18	Fertilizer "D" Grade.	34304	" "	Victoria Chem. Co., Victoria.		2235
			DISTRICT OF VICTORIA			
May 29	Bone Fertilizer	34876	Sylvester Feed Co., Victoria, B.C.	Sylvester Feed Co., Victoria, B.C.		2268
" 29	Whale Fertilizer	34877	Pacific Whaling Co., Victoria, B.C.	Pacific Whaling Co., Victoria, B.C.		
" 29	Bone Meal	34878	" "	" "		
" 30	Fertilizer "B"	34879	Brackman & Ker, Milling Co., Victoria, B.C.	Victoria Chem. Co., Ltd, Victoria, B.C.		2233
" 30	Salmon Guano	34880	" "	Fraser River Oil & Guano Co., Ltd, Vancouver, B.C.		2051
June 16	Superphosphate of Lime.	34881	Victoria Chem. Co., Ltd, Victoria, B.C.	Victoria Chem. Co., Ltd, Victoria, B.C.		2236
" 16	Fertilizer "C"	34882	" "	" "		2234
" 16	Nitrate of Soda	34883	" "	" "		2237

SESSIONAL PAPER No. 14

—BULLETIN No. 161.

Samples.	Results of analysis. Nitrogen, p.c. Total, including that of nitric acid or ammonia, if present.	Nitrogen, p.c. Total calculated as ammonia.	Phosphoric Acid, p.c. Soluble in Water.	Phosphoric Acid, p.c. Reverted or Citrate Soluble.	Phosphoric Acid, p.c. Insoluble.	Phosphoric Acid, p.c. Total.	Phosphoric Acid, p.c. Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	Remarks and Opinion of the Chief Analyst.
	p. c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	$ cts.	
—J. F. POWER, INSPECTOR—*Concluded.*											
Guarantee								50 00	..	50 00	
Standard Bull. 151.								48 04	..	48 04	
As found								19 28	0 25	49 28	Up to guarantee.
Guarantee	3 50					9 00		11 00	..	..	
Standard Bull. 151.	2 53	3 08	7 52	0 56	0 42	8 50	8 08	14 06	12 60	32 43	
As found	2 84	3 15	7 60	0 21	0 32	8 13	7 81	13 61	8 60	32 71	Up to Standard.
Guarantee	3 33	4 01	..	..	..	21	12 15	95	..	29 75	
Standard Bull. 151.	3 50	4 25	..	..	5 87	21 00	15 13	..	6 05	29 60	
As found	3 51	1 27	..	11 15	5 35	16 70	11 45	..	5 40	25 43	Below guarantee in Phosphoric acid.
Guarantee	4 21	..	..	..	..	19 66	..	..	..	..	
Standard Bull. 151.	3 21	3 89	..	16 50	9 75	26 25	16 50	..	1 10	31 35	
As found	3 95	4 79	..	11 15	7 60	21 75	14 15	..	5 40	30 49	Up to guarantee.
Guarantee	3 50	..	..	..	..	9 00	..	11 00	..	..	
Standard Bull. 151.	2 53	3 08	7 52	0 56	0 42	8 50	8 08	14 06	12 60	32 43	
As found	2 91	3 57	7 25	0 22	0 26	7 73	7 47	15 03	8 75	34 02	Up to standard.
Guarantee	8 31	10 09	..	..	..	6 32	..	..	6 55	..	
Standard Bull. 151.	8 96	10 71	1 00	5 25	1 32	7 57	6 25	..	5 95	36 04	
As found	8 44	10 25	0 64	7 85	1 69	10 18	8 49	..	7 90	36 19	Up to guarantee.
Guarantee	2 50	..	..	..	..	10 00	..	11 00	..	..	
Standard Bull. 151.	2 07	2 52	7 14	0 51	1 52	9 50	7 98	11 78	12 35	28 80	
As found	2 01	2 18	10 65	0 20	trace	10 85	10 85	10 64	18 25	30 58	" "
—D. O. SULLIVAN, INSPECTOR.											
Guarantee	4 00	..	..	..	..	24 00	..	..	..	..	
Standard	2 14	2 60	..	9 20	1 35	13 55	9 20	..	5 05	18 27	
As found	1 99	2 42	..	8 55	6 35	14 90	8 55	..	6 08	17 68	Up to standard.
As found	9 40	11 12	0 23	4 13	2 77	7 13	4 36	..	6 49	35 73	Not registered.
As found	2 98	3 62	..	14 10	14 50	28 60	14 10	..	4 40	29 40	"
Guarantee	3 50	..	..	..	..	9 00	..	11 00	..	..	
Standard Bull. 151.	2 53	3 08	7 52	0 56	0 42	8 50	8 08	14 06	12 60	32 43	
As found	3 22	3 91	7 10	0 45	trace	7 55	7 55	12 06	10 12	32 02	Up to guarantee.
Guarantee	8 31	10 09	..	..	..	6 32	..	..	6 55	..	
Standard Bull. 151.	8 96	10 71	1 00	5 25	1 32	7 57	6 25	..	5 95	36 04	
As found	8 06	9 80	1 00	7 07	1 66	9 73	8 07	..	10 70	35 27	"
Guarantee	..	..	..	..	..	16 00	..	..	..	..	
Standard Bull. 151.	..	..	15 55	4 05	1 15	20 75	19 60	..	..	23 46	
As found	..	..	12 00	4 00	3 30	19 30	16 00	..	6 98	19 79	"
Guarantee	..	..	..	..	..	12 50	..	11 00	..	..	
Standard Bull. 151.	..	..	11 20	0 98	0 37	12 55	12 18	12 16	..	26 79	
As found	..	..	10 40	0 13	0 30	10 83	10 53	13 22	8 15	25 93	Nearly up to guarantee.
Guarantee	16 00	..	..	..	..	..	..	..	..	54 40	
Standard Bull. 151.	12 80	15 54	..	..	..	..	..	..	0 75	43 52	
As found	22 96	15 75	..	..	..	..	..	..	1 25	44 06	Up to standard, but not to guarantee.

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FERTILIZERS AS SOLD

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Registered Number.
1908.						
						DISTRICT OF VICTORIA
June 16	Sulphate of Potash.	34884	Victoria Chem. Co., Ltd, Victoria, B.C.	German Kali Works Stansfort, Germany..	.....	2238
" 16	Muriate of Potash.	34885	" " .	" " ..	.....	2239

Samples.	Results of Analysis.										Remarks and opinion of the Chief Analyst.
	Nitrogen, p.c.		Phosphoric Acid, p.c.								
	Total, including that of nitric acid or ammonia if present.	Total calculated as ammonia.	Soluble in water.	Reverted or Citrate Soluble.	Insoluble.	Total.	Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.	
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	$ cts.	
—D. O. SULLIVAN, INSPECTOR—*Concluded.*											
Guarantee								50·00		50 00	
Standard Bull. 151								47·96		47 96	
As found								48·04	1·58	48 04	Up to standard.
Guarantee								50 00		50 00	
Standard Bull. 151								48·04		48 04	
As found								49·40	3 23	49 40	"

APPENDIX TO BULLETIN 161—FERTILIZERS REGISTERED FOR 1908 RECEIVED TOO LATE FOR INSERTION IN BULLETIN 151.

Date when Advised.	Designation.	No. of Sample.	Name and Address of Manufacturer.	By whom sent.	——	Results of Analysis. Nitrogen, p.c. Total, including that of nitric acid or ammonia if present.	Nitrogen, p.c. Total calculated as ammonia.	Phosphoric Acid, p.c. Soluble in Water.	Phosphoric Acid, p.c. Reverted or Citrate Soluble.	Phosphoric Acid, p.c. Insoluble.	Phosphoric Acid, p.c. Total.	Phosphoric Acid, p.c. Total available.	Potash.	Moisture.	Relative value per ton of 2,000 lbs.
1908.						p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	$ cts.
June 16	Ohlendorffe Basic Slag.	2251	Anglo Continental Co., London, Eng. (late Ohlendorffe)	H. H. McNutt, Lower Truro, N.S.	Guaranteed contents	....	....	.....	....	....	....	....	....	.....	.....
					Contents as found	.....	.....	.....	12·45	6·75	19·20	12·45	.....	.....	15·72
" 5	Basic Slag (Bilston)	2252	Alfred Hickman & Co., Bilston, Eng.	E. E. McNutt, Truro, N.S.	Guaranteed contents	.....	...	.....	17·46	.....	21·00	...	.....	.....	...
					Contents as found	.....	.....	.....	13·83	6·47	20·30	13·83	...	.....	17·15
" 19	Crocker's Dissolved Bone Phosphate.	2253	Am. Agr. Chem. Co., Buffalo.	Manufacturers	Guaranteed contents	.....	.....	12·14	2·3	1–2	15–17	14–16	.....	.....	.....
					Contents as found	0·18	0·22	15·43	1·60	0·70	17·73	17·03	.....	10·75	21·10
" 19	Crocker's High Grade Special Fertilizer.	2254	" " ..	"	Guaranteed contents	1·65 to 2·47	2·3	6–7	2–3	1–2	9–11	8–10	4–5	.....	....
					Contenés as found	1·83	2·23	7·75	1·56	0·89	10·20	9 31	2·62	13·45	20·13
" 19	Sulphate of Potash	2255	" " ..	"	Guaranteed contents	..	....	.....	..	.....	....	...	§	....	.....
					Contents as found	....	....	.....	.....	.....	.....	.....	50·86	0·25	50·86
" 19	High Grade Ground Blood.	2256	" " ..	"	Guaranteed contents	9·84–11·48	12·14	.....	....	...	.....	.....	.....	.....	.....
					Contents as found	11·26	13·67	0·11	1·25	0·27	1·63	1·36	...	8·75	37·62
" 19	Kainit	2257	" " ..	"	Guaranteed contents	.....	.....	.....	.....	.....	.....	.....	12·13	....	12·00
					Contents as found	.....	.....	.....	.....	.....	.....	.....	13·94	0·40	13·94
" 19	Muriate of Potash	2258	" " ..	"	Guaranteed contents	.....	.....	.....	.....	...	.....	.....	50–55	.....	50·00
					Contents as found	.....	.....	.....	.....	.....	.....	.....	46·28	1·00	46·28
" 19	Nitrate of Soda	2259	" " ..	"	Guaranteed contents	15·80	19·0	.....	.....	.....	.....	.....	.....	.....	53·72
					Contents as found	16·02	19·46	.....	.....	...	.....	.....	.....	0·50	54·47
" 19	Pure Ground Bone	2260	" " ..	"	Guaranteed contents	3·30–4	4–5	....	.....	.....	20·60–22·00	.....	.....	.....	.....
					Contents as found	2·98	3·62	.....	14·45	7·90	22·35	14·45	.....	4·65	27·70
" 20	Bone Meal	2261	Buffalo Fertilizer Co., Buffalo, N.Y.	Makers	Guaranteed contents	2·87	3·50	.....	.....	.....	22·00	.....	.....	.....	.....
					Contents as found	3·44	4·18	.....	16·20	7·00	23·20	16·20	.....	3·00	30·92

"	20	Muriate of Potash	2262	"	"	"	Guaranteed contents	. .	.....	.....	. . .	.....	. . .	. . .	48·00	...	48·00
							Contents as found...	..	.....	.....	.....	.....	..	.....	55·56	0·25	55·56
"	20	Dried Blood.....	2263	"	"	"	Guaranteed contents	9·84	12·00	....	.	.....	.....	.....	.....	.....	.....
							Contents as found...	11·62	14·11	0·15	4·44	0·44	2·03	1·59	... ..	9·25	39·08
"	20	Nitrate of Soda....	2264	"	"	"	Guaranteed contents	15·00	18·25	.....	.....	.....	.....	.....	.....	.....	51·00
							Contents as found...	14·84	18·02	....	.....	.....	.....	.....	.....	6·40	50·45
July	7	Freeman's Lawn Dressing.	2265	W. A. Freeman Co., Hamilton.	"	.....	Guaranteed contents	....	3·5	.....	.....	.....	9-10	.....	4-4·5	.....	.....
							Contents as found...	1·74	2·11	2·15	4·29	6·07	12·50	6·43	5·21	6·85	20·25
"	30		2266	P. Burns & Co., Calgary	"	. .	Guaranteed contents	6·69	8·12	.....	.....	.....	7·40	.....	.....	3·73	.....
							Contents as found...	7·59	9·49	trace	5·87	2·91	8·78	5·87	.....	2·40	31·55
"	30	Dried Blood....	2267	"	"	..	Guaranteed contents	11·33	13·75	.....	.....	.....	.....	.....	.....	15·46	.....
							Contents as found...	10·74	13·04	.....	3·00	0·77	3·77	3·00	....	7·30	37·89
"	29	Bone Fertilizer	2268	Sylvester Feed Co., Victoria, C.B.	"	.....	Guaranteed contents	4·00	.....	.....	.....	.....	24·00	.....	.....	.....	.....
							Contents as found...	2·14	2·60	.....	9·20	4·35	10·55	9·20	.....	5·05	18·27

* 38 to 45 per cent phosphate of which 80 per cent is citrate soluble. § 90 to 95 per cent sulphate of potash.

APPENDIX L.

BULLETIN No. 162—ICE CREAM.

Ottawa, September 11, 1908.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I beg to hand you a report upon 145 samples of Ice Cream, obtained by our inspectors during July and August of this year. All the inspectoral districts are represented.

These results show much that is of interest; although they are far from being as complete as could be wished. This is mainly due to unexpected difficulties found in transmitting samples of so perishable an article, in a fit state for analysis.

The employment of some preservative being imperative, I selected formaldehyde, and prescribed its use in the proportion of 5 drops of a 40 per cent solution, to 6 ounces of ice cream.

Eighty samples were received in good enough condition to permit of the determination of fat. Fifty nine samples were spoiled, so far as estimation of fat is concerned, and six others were lost through imperfect packing. Experience shows the necessity of quite filling the bottle, to prevent churning during transit, and to exclude air.

The amount of preservative recommended proved quite sufficient to keep the sample in good condition, in spite of the extremely hot weather of last month. Samples from Nova Scotia on the one hand and Calgary on the other were capable of being worked for fat. But some of our inspectors exhibited gross disregard of instructions, and instead of using 6 oz. bottles, quite filled, as they were expressly told to do, used gem jars, and large bottles, which being only partly filled, permitted the sample to be effectively churned, while the contained air assisted decomposition.

We have no standards for ice cream in Canada. It is evident that the article should consist essentially of frozen cream and sugar; and had we a standard for cream, such standard should be applicable to frozen cream, unless otherwise specified. The United States standard for cream requires a minimum of 18 per cent fat; while for ice cream the minimum required is 14 per cent fat. *Fruit Ice Cream* and *Nut Ice Cream* which respectively contain fruit and nuts, are required to contain a minimum of 12 per cent of butter fat.

Ordinary ice cream is always flavoured either by natural or artificial extracts of various fruits, vanilla, &c. The addition of these extracts to a cream together with the sugar reduces the percentage of fat; and this is taken into account in the standards just mentioned.

When less than 14 per cent of fat is present it is usual to add a stiffening material in addition to the sugar, and this practice seems to be followed by some manufacturers

even when the fat content is above 14 per cent. The stiffeners most in vogue are gelatine, gelatinized starch and sucrate of lime. The last has not been found in any of the samples here reported.

By the use of a stiffener, it is possible to use a proportionately poor cream, and yet produce an ice cream of apparent good quality. On this account, rather than because of any unwholesomeness in the thickener itself the employment of such thickeners must be regarded as questionable.

The present investigation shows gelatine to be used in 73 of the samples examined, while 27 contain starch. In some cases the starch is present in traces only, and may be due to the freezing apparatus, or other container, having previously been used for a starch-containing product.

Only one sample contained nuts. Most of the samples were uncoloured; and of those which were coloured, only two were dyed by coaltar products; (35154 and 35158). The remainder were coloured by true fruit juices.

A propos of coaltar dyes in ice cream, I may mention a case recently brought to my notice by Dr. G. P. Girdwood, of Montreal, in which a consumer of artificially coloured (so called strawberry) ice cream, was seriously affected, the symptoms of poisoning persisting for several days. That these dyes are excreted by the kidneys was evidenced by the passing of blood-coloured urine; while the diuretic effect was apparent in the abnormal stimulation of the kidneys. An examination of the dye used convinced me that it is *Ponceau 2 R.* (Sodium Xylidine, Azo-2-Naphtol 3-6 disulphonate,) a colour much used for imitating strawberry, and imported into Canada as 'Strawberry Red.'

Meyer (Jour. Am. Chem. Soc. 1907, p. 892) examined this, and some other aniline colours, by experimenting upon dogs, and found that the first dog succumbed to doses of 16 grams of Ponceau 2 R. on the seventh day. Another dog took as much as 60 grams which he vomited, but continued to take 5 grams doses for twenty days with no ill effects.

These immense doses would indicate that the very minute amounts employed in foods can hardly be considered toxic. Most of the colouring matter was voided in the faeces, but enough of it passed through the kidneys to give a blood red colour to the urine.

Individuals are often so constituted as to be specially susceptible to the action of certain drugs, which most of us may take with apparent impunity. This brings up the whole question of artificial colours in foods, which has been treated more fully in Bull. 83, p. 14 The subject requires fuller investigation than it has yet received.

Of the 80 samples of ice cream received in such condition as to make possible the determination of their fat content, 40 samples contained above 14 per cent, and 40 others contained less than that amount. Of these last, 12 samples contained less than 10 per cent.

I do not feel justified in drawing any general conclusions from the data herein contained; but would respectfully ask that it be published as Bulletin No. 162, as a first contribution to the study of ice cream in Canada. An early opportunity will be taken for further investigation of the subject.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Gelatine.	Starch.	Total Solids.	Fat.	Remarks and Opinion of the Chief Analyst.
							DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.					
1908.										p. c.	p. c.	
Aug. 11	Ice Cream	33536	D. R. Ross, Halifax, N.S.	1 pint	20	Vendor	Sample sold as vanilla ice cream.	None	None		15·42	Sample in good condition.
" 11	"	33537	" "	1 "	20	"	Sample sold as strawberry ice cream.	None	None		15·64	" "
" 11	"	33538	F. W. Cookson, Halifax, N.S.	1 "	20	"	Sample sold as vanilla ice cream.	Present.	None		15·70	" "
" 11	"	33539	Scotia Pure Milk Co., Ltd., Halifax, N.S.	1 "	20	Vendors	Sample sold as pineapple ice cream.	Present.	None		15·08	" "
" 11	"	33540	" "	1 "	20	"	Sample sold as strawberry ice cream.	Present.	None		14·86	" "
" 12	"	33541	J. E. Regan, Halifax, N.S.	1 "	25	Vendor	Sample sold as peach ice cream.	None.	None		11·84	" "
" 12	"	33542	Teas & Co., Halifax, N.S.	1 "	25	Vendors	Sample sold as chocolate ice cream.	Present.	Present.		9·60	Sample in good condition; of low quality.
" 12	"	33543	" "	1 "	25	"	Sample sold as macaroon ice cream.	Present.	None.		8·16	" "
" 12	"	33544	Gaspero Poteri, Halifax, N.S.	1 "	25	Vendor	Sample sold as vanilla ice cream.	Present.	None		2·76	Sample in good condition; of very low quality.
" 12	"	33545	W. Patrick, Halifax, N.S.	1 "	25	Scotia Pure Milk Co., Halifax, N.S.	Sample sold as macaroon ice cream.	Present.	None		11·42	Sample in good condition.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspectors' Report.	Results of Analysis. Gelatine.	Starch.	Total Solids.	Fat.	Remarks and Opinion of the Chief Analyst.
			DISTRICT OF PRINCE EDWABD ISLAND—T. MOORE, INSPECTOR.							p. c.	p. c.	
July 15	Ice Cream	31291	Vincent McIsaac, Souris.	1 pint	30	Vendor.						Both bottles broken in transit; carelessness in packing.
" 15	"	31292	T. Packard, Souris.	1 "	25	"						" "
" 22	"	31293	M. Richards, Murray River.	1 "	25	"		None.	None.		6·30	Sample in good condition; of low quality.
" 28	"	31294	E. J. DesRoches, Charlottetown.	1 "	25	"		Present.	None.			Sample in poor condition; fat not determined.
" 28	"	31295	Mills Bros., Charlottetown.	1 "	25	Vendors.		Present.	None.			" "
" 28	"	31296	Mrs. W. F. Carter, Charlottetown.	1 "	25	Vendor.		Present.	None.			" "
" 30	"	31297	Mrs. J. Vatcher, Charlottetown.	1 "	25	"		None.	None.		10·80	Sample in good condition.
Aug. 3	"	31298	E. Keir, Kensington.	1 "	25	"		Present.	None.		6·10	Sample in good condition; of low quality.
" 4	"	31299	J. J. Gaudet, Summerside.	1 "	25	"		Present.	None.		11·30	Sample in good condition.
" 4	"	31300	J. W. Warren, Summerside.	1 "	25	"		Present.	Present.		10·50	" "
			DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.									
July 28	Ice Cream	29723	Maritime Dairy Co., St. John, N.B.	1 pt	20	Vendors.		None.	None.		14·08	Sample in good condition.
" 28	"	29724	T. J. Phillips, St. John, N.B.	1 "	20	Vendor		None.	None.			Sample in poor condition. Fat not determined.
" 28	"	29725	Frank White Catering Co, St. John, N.B.	1 "	30	Vendors.		Present.	Present.		21·42	Sample in good condition.

"	29	"	..	29726	A. J. Russell, St. John, N.B.	1	"	...	20	Vendor		Present.	None.		13·58	"	"
"	29	"	..	29727	Ramsay Bros., St. John, N.B.	1	"	....	25	Vendors		None.	None.		11·06	"	"
Aug.	4	"	..	29728	D. A. Vail, Sussex, N.B.	1	"	....	25	Vendor		None.	None.		20·56	"	"
"	5	"	..	29729	W. S. Smith, Moncton, N.B.	1	"	....	30	"		None.	Trace.		12·89	"	"
"	5	"	..	29730	Jennie McGee, Moncton, N.B.	1	"	....	30	"		None.	None.		13·20	"	"
"	13	"	..	29731	Checchi Bros., Water St., St. Stephen, N.B.	1	"	...	20	Vendors		Present.	None.		8·84	Sample in good condition. Of low quality.	
"	15	"	.	29732	Geo. F. Wilkes, Fredericton, N.B.	1	"	....	25	Vendor		Present.	None.		8·68	"	

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

1908.																
July	29	Ice Cream	..	34407	R. Langlois, 7 Hall du Palais, Quebec.	6	glasses		30	Vendor			None.			Sample in bad condition. Fat not determined.
"	29	"	..	34408	— Lacan, 13 Hall du Palais, Quebec.	6	"	..	30	"		Present.	None.			" "
"	29	"	..	34409	R. Langlois, 15 Hall du Palais, Quebec.	6	"	..	30	"			None.			" "
"	29	"	..	34410	Gedéon Duscauld, 140 Rue St. Joseph, Quebec.	6	"	.	30	"			None.			
"	29	"	.	34411	J. D. Valiquet, 104 Rue St. Joseph, Quebec.	3	pts.	..	30	"		None.	Present.			" "
"	29	"	..	34412	A. J. Adam, 138 Rue du Pont, Quebec.	6	glasses		30	"			None.			" "
	29	"	..	34413	A. L. Paloquin, 142 Rue du Pont, Quebec.	6	"	..	30	"			None.			" "
	29	"	..	34414	G. E. Sauviat & Cie, 88 Rue St. Joseph, Quebec.	6	"	:	30	Vendors			None.			" "
	29	"	..	34415	W. Macmilliam & Son, 114 Rue St. Joseph, Quebec.	6	"	..	60	"		None.	None.			" "
	29	"	..	34416	Joseph Budy, 285½ St. Joseph, Quebec.	6	"	.	30	Vendor			None.			" "

BULLETIN No. 162—ICE CREAM.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.	Inspector's Report	Results of Analysis. Gelatine.	Starch.	Total Solids.	Fat.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.												
1908.										p. c.	p. c.	
July 30	Ice Cream..	150	J. S. Gingras, Marieville.	1 pint .	25	Vendor.....	.....	Present.	Present.	.....	5·93	In good condition. Of very poor quality.
Aug. 3	" .	151	G. Bergeron, Drummondville.	1 " ..	30	"	.....	None.	None.	....	11·84	In good condition.
" 3	" ..	152	F. W. Savage, Waterloo.	4 plates.	40	"	.....	None.	None.	.....	17·77	"
" 3	" ..	153	C. H. Welch, Waterloo.	4 " .	20	"	.. ..	Present.	None.	.....	9·35	In good condition. Of poor quality.
" 4	" ..	154	Arthur Villeneuve, Magog.	5 " .	25	"	.....	None.	Present.	.....	10·86	In good condition.
" 5	" ..	155	M. Panos, Sherbrooke.	1 pint ..	25	"	.....	None.	None.	....	17·78	"
" 5	" ..	156	Jos. Bilodeau, Sherbrooke.	1 " ..	25	"	.....	Present.	Present.	....	11·22	"
" 5	" ..	157	A. F. Shasha, Sherbrooke.	1 " ..	25	"	.....	None.	None.	...	16·26	"
" 10	" ..	158	Dieu & frères, St. Hyacinthe.	1 " ..	35	Vendors.....	.....	None.	None.	.....	19·84	"
" 10	" ..	159	P. Therrien, St. Hyacinthe.	1 " ..	25	Vendor	.....	Present.	None.	.....	4·80	In good condition. Of very low quality.
DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.												
July 14	Ice Cream..	32601	Imperial Ice Cream Co., Ltd., Montreal.	1 pint ..	25	Vendors.....	Put up in 1 pint blocks.	None.	None.	40·5	21·7	In good condition.
" 14	" ..	32602	J. D. Duncan Co., 218 Mountain St., Montreal.	1 " ..	30	"	" " ..	Present.	None.	42·2	19·5	

"	23	"	..	32603	Standard Dairy Co., Montreal.	1	"	..	25	"	..	Present.	None.	.....	10·96	"
"	23	"	..	32604	M. Nicholson, 481 St. Lawrence St., Montreal.	1	"	..	20	Vendor.	..	Present.	None	...	.....	Sample in poor condition. Fat not determined.
"	24	"	..	32605	Robert Pharmacie, St. Catherine St., Montreal.	1	"	..	25	Standard Dairy Co..	..	Present.	None.	.....	12·54	In good condition.
"	24	"	..	32606	Z. Demetre, 590 St. Catherine St. Montreal.	1	"	..	25	Vendor	.	None.	None.	.... ..	12·58	"
"	24	"	..	32607	W. J. Scott, 248 St. Denis St., Montreal.	1	"	.	25	" ..	..	None.	None.	...	.....	In poor condition. Fat not determined.
"	27	"	..	32608	D. H. Welsh, St. Peter St., Montreal.	1	"	.	25	" ..	..	None.	Trace.	....	23·34	In good condition.
"	27	"	..	32609	J. M. Aird, 293 Notre Dame St., Montreal.	1	"	.	25	Imperial Ice Cream Co., Ltd., Montreal.	...	Present.	None.	....	17·86	"
"	27	"	..	32610	Sperdakos Bros., 458 Notre Dame St., Montreal.	1	"	..	25	Vendors	..	Present.	None.	.	.....	In poor condition. Fat not determined.

DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.

July	11	Ice Cream	..	22643	J. W. Brisco, Pembroke, Ont.	1	pt	. .	25	Vendor .	.	Present.	None.	34·5	12·5	Sample in good condition.
"	11	"	..	22644	F. W. Chambers, Pembroke, Ont.	1	"	.	25	"	.	None.	None.	34·1	15·9	" "
"	11	"	..	22645	C. F. MacInnes, Prescott, Ont.	1	"	.	20	"	...	None.	None.	37·3	18·5	" "
"	15	"	..	22646	P. Pearson, Ottawa, Ont.	1	"	.	30	Ottawa Dairy Co., Ottawa, Ont.		None.	None.	38·0	20·8	" "
"	20	"	..	22647	C. H. Rogers, Britannia, Ont.	1	"	.	25	Vendor .	.	None.	Trace.	36·2	12·9	" "
"	20	"	..	22648	T. D. Sayer, Aylmer Park, Que.	1	"	..	25	"	.	None.	None.	31·6	11·5	" "
"	21	"	..	2649	Ottawa Dairy Co., Ottawa, Ont.	1	"	.	25	Vendors.	.	None	None.	34·3	15·7	" "
"	21	"	..	22650	" "	1	"	....	25	"	.	Made in pt. bricks.	Trace.	None.	39·9	20·9	" "
"	23	"	..	22651	W. S. Baldwin, Carleton Place.	1	"	.	25	Vendor	.		None.	Present.	32·2	15·2	" "
"	25	"	..	22652	David Wilson, Shawville, Que.	1	"		25	Ottawa Dairy Co., Ottawa, Ont.	.		None.	None.	38·6	19·8	" "

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis.				Remarks and Opinion of the Chief Analyst.
				Quantity.	Cents.			Gelatine.	Starch.	Total Solids.	Fat.	
DISTRICT OF KINGSTON—J. HOGAN, INSPECTOR.												
1908.										p. c.	p. c.	
July 20	Ice Cream..	35255	S. Leverin, Kingston.	1 pt....	20	Vendor	.....	Present.	None.	.....	.....	Sample in bad condition. Fat not determined.
" 20	" ..	35256	J. Frasso, " ..	1 "	20	"	.....	Present.	None.	....	.....	" "
" 20	" ..	35257	Y. Handell, " ..	1 "	20	"	.....	Present.	Present.	.....	... .	" "
" 20	" ..	35258	H. F. Prices, " ..	1 "	25	H. F. Prices, Kingston	.....	Present.	None.	.....	.....	" "
" 20	" ..	35259	Geo. Masond, " ..	1 "	20	Vendor	.....	Present.	None.	...	....	" "
" 20	" ..	35260	H. Jarvis, " ..	1 "	25	"	.....	None.	None.	.....	.....	" "
20	" ..	35261	J. McLaughlin, Kingston.	1 "	20	"	.....	Present.	None.	.....	.....	" "
" 20	" ..	35262	T. Peters, Kingston.	1 "	20	"	.....	None.	None.	.....	.....	" "
" 20	" ..	35263	A. J. Rees, " ..	1 "	25	"	.....	Present.	None.	....	.....	" "
" 20	" ..	35264	G. W. Mahood, Kingston.	1 " ...	25	"	.....	Present.	None.	.....	.....	" "
DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.												
Aug. 5	Ice Cream..	35154	L. O. Boist, Hamilton.	1 pt....	20	Vendor	.....	None.	None.	.....	13·71	In good condition. Contains coal tar dye.
" 5	" ..	35155	The Pure Milk Co., Ltd., Hamilton.	1 "	20	Vendors.....	.....	None.	None.	.....	14·85	In good condition.
" 5	..	35156	Burke Bros., Hamilton.	1 "	20	"	.....	None.	Present.	.....	13·05	"

"	5	"	35157	D. M. Lod, Oshawa.	1	"	20	Vendor			Present.	Present.		8·00	In good condition.	Of poor quality.
"	5	"	35158	M. J. Gibson, Oshawa	1	"	20	"			Present.	None.		8·97	In good condition.	Of poor quality. Coal tar dye.
"	8	"	35159	Chas. Lod, Whitby.	1	"	20	"			Present.	Present.		15·59	In good condition.	
"	13	"	35160	Wm. Neilson, Ltd.,	1	"	15	Vendors	Made in pt. bricks.		Present.	None.			In poor condition. determined.	Fat not
"	13	"	35161	City Dairy Co., Ltd., Toronto.	1	"	25	"			None.	None.		20·24	In good condition.	
"	13	"	35162	S. Price & Sons, Ltd., Toronto.	1	"	20	"			None.	None.			In poor condition. determined.	Fat not
"	13	"	35163	Union Dairy Co., Toronto.	1	"	20	"			Present.	None.		10·76	In good condition.	

DISTRICT OF LONDON—T. KIDD, INSPECTOR.

July	20	Ice Cream	30949	Oscar Neill, Seaforth	1	pt	20	Vendor			Present.	None.			In poor condition. determined.	Fat not
"	20	"	30950	Chas. Abrahart, Seaforth.	1	"	20	"			Present.	None.			"	"
"	21	"	30958	Chas. Gough, Stratford.	1	"	20	"			None.	Present.			"	"
"	22	"	30960	J. W. Palmer, Hensal	1	"	20	"			Present.	Present.			"	"
"	23	"	30965	G. McLennon, Clinton.	1	"	20	"			Present.	None.			"	"
"	29	"	30966	S. G. S. Kirk, Brussels.	1	"	15	"			None	None			"	"
"	31	"	30972	Frank H. Smith, St. Marys.	1	"	15	"			None	None.		18·94	In good condition.	
"	31	"	30974	Mrs. Harvey Tuer, St. Marys	1	"	20	"			Present.	None.		14·52	"	
"	31	"	30975	Mrs. Smith, St. Marys.	1	"	20	"			None	Present.		17·60	"	
"	31	"	30976	Bush & Cox, Stratford.	1	"	20	Vendors			None.	None		11·66	"	

DISTRICT OF WINDSOR—J. TALBOT, INSPECTOR.

July	16	Ice Cream	34578	Peter Hrsikos, London.	1	pint	20	Vendor.			Present.	None			In poor condition. determined.	Fat not
"	16	"	34579	Fawkes & Son, London.	1	"	15	Vendors			None.	None.			"	"
"	17	"	34580	C. J. Leach, London.	1	"	20	Vendor.			Present.	Present.			"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.	Inspector's Report.	Results of Analysis. Gelatine.	Starch.	Total Solids.	Fat.	Remarks and Opinion of the Chief Analyst.	
DISTRICT OF WINDSOR—J. TALBOT, INSPECTOR. *Concluded.*													
1908.										p. c.	p. c.		
July 21	Ice Cream..	34584	John Howe, Port Stanley.	3 bots..	25	Vendor.		Present.	None.			In poor condition.	Fat not determined.
" 21	" ..	34585	A. Herrick, Port Stanley.	3 " ..	25	"		Present.	None		...	"	"
" 21	" ..	34586	Alfred Hall, Port Stanley.	1 " ..	50	"		Present.	None.			"	"
DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.													
July 28	Ice Cream..	33182	D. Cassels, Portage La Prairie.	1 pint ..	25	Vendor		None.	None.		20·58	In good condition.	
" 28	" ..	33183	T. T. Bailey, Portage La Prairie.	1 " ..	25	"		Present.	None.			In poor condition.	Fat not determined.
" 28	" ..	33184	A. W. Belshan, Carberry.	1 " ..	25	"		Present.	Present.			"	"
" 29	" ..	33185	Wm. Argard, Brandon.	1 " ..	25	"		Present.	None.			"	"
" 29	" ..	33186	Primeau & Co., Brandon.	1 " ..	25	Vendors		None.	None.			"	"
" 30	" ..	33187	Wm. Burge, 45–47 Gertie St., Winnipeg.	1 " ..	40	Vendor		Present.	None.			"	"
" 31	" ..	33188	W. R. Milton, 246 Main St., Winnipeg.	1 " ..	20	"		Present.	None.			"	"
" 31	" ..	33189	The Crescent Creamery Co., Winnipeg.	1 " ..	..	Vendors		Present.	None.			"	"
Aug. 1	" ..	33190	Julius Bros., 594 Main St., Winnipeg.	1 " ..	25	"		None.	None.		13·33	In good condition.	
" 1	" ..	33191	" " ..	1 " ..	15	"		None.	None.		17 70	"	

TRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.

Aug.	13	Ice Cream..	35306	Owen H. Bott, Calgary.	1 pt.	40	Vendor	None	Present.	19·22	Sample in good condition.		
"	17	" ..	35307	H. B. McKinnon, Medicine Hat.	1 "	30	"	None	None.	11·48	"	"	
"	17	" ..	35308	W. H. Doby, Medicine Hat.	1 "	20	"	None.	Trace.	16·96	"	"	
"	25	" ..	35309	Bee Hive Mfg. Co., Edmonton.	1 "	25	Vendors	Present.	Trace.	12·88	"	"	
"	25	" ..	35310	Hallier & Aldridge, Edmonton.	1 "	30	"	None.	None.	19·36	"	"	
"	27	" ..	35346	Rochon Bros., wholesale, Calgary.	1 "	30	"	Present.	Trace.	13·46	"	"	
"	27	" ..	35347	Mrs. Stirritt, Calgary	1 "	30	Vendor	Present.	None.	23·88	"	"	
"	27	" ..	35348	Rochon Bros., retail, Calgary.	1 "	30	Vendors	Present.	Present.	14·50	"	"	
"	27	" ..	35349	Mrs. E. Dunsmore, Calgary.	1 "	30	Vendor	None	None.	17·16	"	"	
"	27	" ..	35350	J. Arvell, Calgary...	1 "	35	"				Both bottles broken in transit.		

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

Aug.	12	Ice Cream..	34310	Richmond Dairy Co., Vancouver.	1 pt.	25	Vendors				Both samples broken, due to bad packing.		
"	12	" ..	34311	R. A. Crawford, Vancouver.	1 "	25	Richmond Dairy Co. Vancouver.	Present.	None		In poor condition. Fat not determined.		
"	12	" ..	31312	Chas. Nelson, Vancouver.	1 "	25	Almond Creamery Co., Vancouver.	Present.	None		"	"	
"	12	" ..	34313	The Spa Candy Co., Vancouver.	1 "	25	Vendors	None.	Present.	12·80	In good condition.		
"	12	" ..	31344	Dels Confectionery Store, Vancouver.	1 "	25	"	None	None.	15·66	"		
"	12	" ..	31345	Marrett & Ried, Vancouver.	1 "	25	"	Present.	None.		In poor condition. Fat not determined.		
"	12	" ..	34346	Royal Candy Factory, Vancouver			"	Present.	None.	19·02	In good condition.		
"	12	" ..	34347	A. Demetory, Vancouver.			Vendor.	None.	None.		In poor condition. Fat not determined.		
"	14	" ..	34348	City Dairy Co., Vancouver	1 "	25	Vendors	Present.	None.		"	"	
"	14	" ..	34349	Woodwards Dept. Stores, Vancouver.	1 "	25	Almond Creamery Co., Vancouver.	None	Present.	11·24	In good condition.		

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Gelatine.	Starch.	Total Solids.	Fat.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF VICTORIA—D. O. SULLIVAN, INSPECTOR.												
1908.										p. c.	p. c.	
July 28	Ice Cream..	34930	Hall & Co., Victoria.	1 pt ...	25	Vendors.	....	None.	None.	....	16·92	In good condition.
" 30	" ..	34931	G. H. Larrigan, Victoria.	1 "	25	Royal Dairy, Victoria	.....	Present.	None.	.....	....	In poor condition. Fat not determined.
" 30	" ..	34932	H. A. Lilly, Victoria	1 "	25	Vendor	....	.....	.....	.....	.....	Bottle samples broken, due to careless packing.
" 30	" ..	34934	R. H. Mould, Victoria.	1 "	50	Royal Dairy, Victoria	....	None.	None.	.....	....	In poor condition. Fat not determined.
" 30	" ..	34935	A. Westendale, Victoria.	1 "	50	" " ..	....	Present.	None.	.....	.....	" " ..
" 30	" ..	34938	J. Paula, Victoria ..	1 "	50	" " ..	... .	... .	.....	.....	.....	Both bottles broken, due to careless packing.
" 30	" ..	34939	Victoria Creamery Assoc., Victoria.	1 "	20	Vendors	....	Present.	None.	.....	...	In poor condition. Fat not determined.
" 31	" ..	34974	Harcop & Antipas, Victoria.	1 "	45	"	....	Present.	None.	.....	.. .	" " .
" 31	" .	34975	V. Stramtares, Victoria.	1 "	50	"	.....	Present.	None.	. ...	.....	" " ..

APPENDIX M.

BULLETIN No. 163—PICKLES.

OTTAWA, September 21, 1908.

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR,—I have the honour to hand you a report of work upon 149 samples of pickles collected throughout the various inspectoral districts of Canada in July and August last.

With two exceptions, the vegetables were found to be in good condition. Both of the exceptional cases were evidently prepared with very weak vinegar, or the vegetables contained so much water as to dilute this, to respective strengths of 1·02 and 0·61 per cent of acetic anhydride.

The acetic strength of the vinegar present in these samples was found to be as follows:—

	Samples.
Above 3 per cent anhydride.	14
Between 3 and 2·5 p.c. "	26
" 2·5 and 2·0 " "	50
" 2·0 and 1·5 " "	49
" 1·5 and 1·0 " "	8
Below 1 per cent. "	2
Total	149

Alum is said to be sometimes employed to harden the vegetables, as well as to give them better keeping qualities, and to permit of the use of a weaker vinegar. All the samples were examined for soluble alumina, with the following results:—

	Samples.
Soluble Alumina absent in	124
" " present in	25
Total	149

It would not, however, be safe to infer the use of alum in every case in which a reaction for alumina was obtained. Owing to the prone habit of cucumbers, and the liability to take up, in the creases of the pericarp, minute particles of clay, and further to the possibility of a slight solubility of such clay by prolonged contact with acetic acid, it may be that, where merely traces of alumina were found, these may be accounted for, as above suggested. It is however, noteworthy that 124 samples gave no reaction with tests for alumina. This fact seems to warrant the conclusion that, where *distinct* traces of alumina are found in solution, the use of alum is indicated.

The only preservatives found (other than the vinegar) were salicylic acid and sulphurous acid, the latter probably used as acid sulphite of lime. Twelve (12) samples gave reactions for salicylic acid; 137 samples gave no reaction.

Twelve (12) samples gave reactions for sulphurous acid. Of this number, 4 were prepared with mustard (so-called Chow-Chow). In view of the fact that mustard con

tains sulphur, which might under certain conditions (e.g. boiling with saltpetre) yield sulphurous acid, it is important to note that six (6) other samples of this class of pickle gave no reactions for sulphurous acid.

Sulphurous acid or a sulphite, may be employed either or both for the purpose of bleaching certain vegetable tissues (cauliflower, onion, &c.), and as a preservative. Of course different manufacturers have different methods of working; and the objects aimed at by various trade practices, can only be surmised by an outsider.

This is the first occasion upon which pickles have been examined in this laboratory. We have no standard defined for this article of food, nor is it easy to formulate such. The United States Standards of 1906, define pickles as 'clean, sound, immature cucumbers, properly prepared, without taking up any metallic compound other than salt, and preserved in any kind of vinegar, with or without spices; *pickled onions*, *pickled beets*, *pickled beans*, and other pickled vegetables, are vegetables prepared as described above and conform in name to the vegetable used.'

The present report must be regarded as a first contribution to the study of pickles, as found on Canadian markets.

I beg to recommend its publication as Bulletin 163.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis. Acetic anhydride per 100 cc.	Results of Analysis. Alum.	Results of Analysis. Preservatives.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.											
1908.											
Aug. 4	Bottled Pickles.	33511	Wm. Smith, Kentville, N.S.	3 bots..	40	Canada Pickling Co., Toronto.	Bull Dog Brand..	2·24	Trace in ash.	Sulphurous acid. 0·007 per 100 cc.	Mixed pickles. Vegetables sound and firm.
" 5	" ..	33512	J. Lynch & Sons, Windsor, N.S.	3 " ..	15	Lipton, London, Eng.	Lipton's Mixed Pickles.	3·37	None.	None.	" "
" 6	" ..	33513	J. S. Creed, Halifax, N.S.	3 " .	45	" " ..	Lipton's Chow Chow.	2·75	None.	None.	Chow Chow. Vegetablos sound and firm.
" 8	Bulk Pickles ...	33514	C. E. Choat, Halifax, N.S.	2 lbs..	36	Heinz, Pittsburgh, U.S.	Sweet Mixed Pickles.	1·84	Trace in ash.	None.	Mixed pickles. Vegetables sound and firm.
" 10	" ..	33515	City Provision Store, Halifax, N.S.	2 " ..	30	" " ..	" " ..	1·91	Trace in ash.	None.	" "
" 4	" ..	33516	D. H. Dodge, Kentville, N.S.	2 " ..	20	H. A. Moore, Wolfville, N.S.	Mixed Pickles	1·58	None.	None.	Pickles. Vegetables sound and firm.
" 4	Bottled Pickles.	33517	S. L. Cross, Kentville, N.S.	3 bots..	60	Heinz, Pittsburgh, U.S.	Heinz Mixed Pickles.	3·36	None.	None.	Mixed pickles. Vegetables sound and firm.
" 5	Bulk Pickles....	33518	Curry Bros., Windsor, N.S.	2 lbs....	38	" " ..	Mixed Pickles	2·01	Trace in ash.	.....	" "
" 7	" ..	33519	E. B. Tracy, Halifax, N.S.	2 " ..	36	" " ..	Bulk Chow Chow..	2·55	None.	Sulphurous acid. 0·025 per 100 cc.	Chow Chow. Vegetables sound and firm.
" 7	Bottled Pickles.	33520	O'Neil & Mulcahy, Halifax, N.S.	3 bots..	30	Johnston, Baird & Co., Glasgow, N.S.	Baird's second to none.	2·65	None.	None.	Mixed pickles. Vegetables sound and firm.

DISTRICT OF PRINCE EDWARD ISLAND—T. MOORE, INSPECTOR.

July	15	Bottled Pickles	31326	Mathew & McLean, Souris.	3 bots	36	Fletts, Liverpool	Choice family pickles carefully packed with select vegetables and pure vinegar.	1·68	None.	Salicylic acid.	Mixed pickles. Vegetables sound and firm.	
"	20	"	31327	Geo. Rackham, Charlottetown.	3 "	36	Chas. Heaton & Co., London.	.....	1·78	None.	None.	"	"
"	22	"	31328	A. M. Ross, Murray River.	3 "	75	C. Heaton & Co., London.	.....	1·78	None.	None.	"	"
"	24	"	31329	P. A. Smith, Charlottetown.	3 "	42	The Ozo Co., Ltd., Montreal.	Superior quality mixed pickles	2·14	None.	Traces of Salicylic acid.	"	"
Aug.	3	"	31330	Wm. Callbeck, Central Bedeque.	3 "	60	Rowatt & Co., Liverpool & Glasgow.	Rowat's superior pickles in pure vinegar.	2·30	None.	None.	"	"
July	20	Bulk Pickles	31331	James Kelly, Charlottetown.	1 qt	25	H. J. Heinz, Pittsburgh, U.S.	.....	2·55	None.	None.	Pickles. Vegetables sound and firm.	
"	20	"	31332	J. H. Myrick, Charlottetown.	1 "	25	J. Winsor & Son, Boston, Mass.	.....	2·45	None.	Sulphurous acid. 0·007 per 100 cc.	Chow Chow. Vegetables sound and firm.	
"	27	"	31333	J. McQuaid, Charlottetown.	1 "	36	H. J. Heinz, Pittsburgh, U.S.	This sample of pickles is sweet.	1·98	Present in ash.	None.	Mixed pickles. Vegetables sound and firm.	
Aug.	4	"	31334	F. W. Strong, Summerside.	1 "	25	Hudon, Hebert & Co., Montreal.	.....	2·19	None.	None.	"	"
"	4	"	31335	R. T. Holman, Ltd., Summerside.	1 "	25	The Ozo Co., Ltd., Montreal.	.....	1·10	None.	None.	"	"

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.

July	18	Bottled Pickles	29758	G. A. Troop & Co., St. John, N.B.	3 bots	60	Vendors	Acme Brand	2·65	None	None.	Mixed pickles. Vegetables sound and firm.	
Aug.	6	"	29760	Thos. Russell, Newcastle, N.B.	3 "	45	The Ozo Co., Ltd., Montreal.	Superior quality mixed pickles.	3·18	None.	None.	"	"
"	7	"	29761	A. H. Marquis, Chatham, N.B.	3 "	60	A. T. Randolph & Son, Fredericton, N.S.	Heatons Mixed Pickles.	2·80	None.	None.	"	"
"	13	"	29762	Fred. E. Rose, St. Stephen, N.B.	3 "	30	The Excelsior Vinegar Co., St. John, N.B.	Old stock mixed pickles. Sold as received.	2·00	None.	None.	"	"
July	18	Bulk Pickles	29763	Geo. A. Troop & Co., St. John, N.B.	3 "	60	Vendors	Bottles filled from bulk pickles in factory.	2·95	None.	None.	"	"
"	23	"	29764	P. M. Case, St. John, N.B.	1 quart	30	H. J. Heinz & Co., Pittsburgh, U.S.	Heinz Sour Mixed Pickles.	2·85	None.	None.	"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Acetic anhydride per 100 cc.	Results of Analysis. Alum.	Results of Analysis. Preservatives.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR—*Concluded.*											
1908.											
July 24	Bulk Pickles....	29765	W. R. Small, St. John, N.B.	1 " ..	40	Baird & Peters, St. John, N.B.	Heinz 2,000 Sweet Gherkins.	1·68	None.	None.	Mixed pickles. Vegetables sound and firm.
Aug. 4	"	29766	Sussex Mercantile Co., Ltd., Sussex, King's Co., N.B.	1 " ..	30	" " ..	Heinz 3,000 Sweet Pickles.	1·89	Trace in ash.	None.	" "
" 14	" .. .	29767	E. G. Hoben, Fredericton, N.B.	1 " ..	20	Ozo Co., Montreal, Canada.	.....	2·00	None.	None.	Pickles. Vegetables sound and firm.
" 18	Bottled Pickles.	29768	John Graham Estate, Woodstock, N.B.	3 bots..	75	C. & E. Morton, Leadenhall St., London.	Labelled, Mixed Pickles.	2·14	None.	None.	Mixed Pickles. Vegetables sound and firm.
DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.											
July 16	Bottled Pickles.	26473	Mederic Tramblay, Baie St. Paul.	3 bots..	39	Whitead & Turner, Que.	.....	2·04	None.	Sulphurous acid.	Mixed pickles. Vegetables sound and firm.
" 16	" ..	26474	Arcène Larouche, Baie St. Paul.	3 " ..	75	" " ..	.....	1·68	None.	None.	" "
" 16	" ..	26475	Juste Jean, Baie St. Paul.	3 " ..	30	Bedard & Frère, Que.	.....	2·70	None.	None.	" "
" 17	" ..	26478	Philippe Gagnon, Baie St. Paul.	3 " ..	48	Whitead & Turner, Que.	.....	2·19	None.	None.	" "
" 17	" ..	26481	Benjamin Simard, Baie St. Paul.	3 " ..	30	Nazaire Turcotte & Cie, Que.	.....	2·45	None.	Sulphurous acid.	" "
" 24	Bulk Pickles	26490	Joseph Falardeau, 271 Rue St. Joseph, P.Q.	1 quart.	15	Ozo, Montreal	.....	2·37	None.	None.	" "
" 24	"	26491	" " ..	1 " ..	15	Heinz, Pittsburg, U.S.	.....	1·63	Trace in ash.	None.	Pickles. Vegetables sound and firm.

14—13½	"	24	"	....	26497	J. C. Delage, 368 Rue St. Joseph, Que.	1	"	..	30	Ozo, Montreal			3 16	None	None.	Mixed pickles. Vegetables sound and firm.
	"	24	"	....	26496	Moise Pouliott, 367 Rue St. Joseph, P.Q.	1	"	..	20	"			2·95	None	None.	" "
	"	24	"	....	26498	Alphonse Laroche, 120 Rue Dorchester St., P.Q.	1	"	..	20	Vendor	Home made		1·91	None.	None.	" "

DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.

July	29	Bottled Pickles.	185	R. Dubreuil, St. Cesaire.	3 bots.	..	35	..		1 73	None.	Salicylicacid	Mixed pickles. Vegetables sound and firm.
"	30	" ..	186	H. F. Desmarais, Marieville.	3	" ..	90	H. J. Heinz & Co., Pittsburg, U.S.A.		2 44	None.	None.	Chow Chow. Vegetables sound and firm.
Aug.	5	" ..	187	W. Murray & Co., Sherbrooke.	3	" ..	45	Royal Packing Co., Montreal.		2·04	Present.	Sulphurous acid.	Mixed pickles. Vegetables sound and firm.
"	6	" ..	188	Jos. Lesperance, Lac Megantic.	3	"	1 05	Crosse & Blackwell, London, Eng.	Chow Chow	3 31	None	None.	Chow Chow. Vegetables sound and firm.
"	11	" ..	189	Chas. Plante Sorel	3	" .	30	Mfg. at 40 Plessis st., Montreal.	Selected Home Brand Pickles.	1 78	None	Sulphurous acid.	Mixed pickles. Vegetables sound and firm.
"	4	Bulk Pickles.	190	Gosselin & Paradis, Magog.	1½	qt	25	The Ozo Co., Ltd., Montreal.	Mixed pickles.	2·04	Trace in ash.	Trace of salicylic acid.	" "
"	5	" ..	191	Couture & Moore, Sherbrooke.	1½	"	13	Not known.		1 02	"	None.	Mixed pickles. Vegetables mouldy.
"	10	" ..	192	E. Benoit, St. Hyacinthe.	1½	" ..	20	J. V. Boudrias, Montreal.		1·58	"	Salicylicacid	Mixed pickles. Vegetables sound and firm.
"	20	" ..	193	F. Giroux, St. Jean, Que.	1½	" ..	20	H. Claprood, St. Jean		1 73	"	None.	Pickles. Vegetables sound and firm.
"	21	" ..	194	J. B. Nadeau, Farnham.	1½	" ..	16	The Ozo Co., Ltd., Montreal.		1·58	"	None.	Mixed pickles. Vegetables sound and firm.

DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.

July	16	Bottled Pickles..	32636	Ozo Co., Ltd., Montreal.	3 bots.		25	Vendors	Taken from packed stock as prepared for shipment.	2 37	None.	None.	Mixed pickles. Vegetables sound and firm.
"	16	" .	32637	J. O. Perrault & Cie, Plessis st., Montreal.	3	"	75	"	" ..	2·37	None.	Sulphurous acid.	" "
"	17	" .	32638	O. O. Galarneau, Wellington st., Montreal.	1	" ..	35	H. Bourque & fils, Montreal.		2 75	None.	None.	" "

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Acetic anhydride per 100 cc.	Results of Analysis. Alum.	Results of Analysis. Preservatives.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR—*Concluded.*											
1908.											
July 30	" ..	32639	A. Lagarde, 549 Notre Dame West, Montreal.	3 " ..	30	Sugars & Canners, Ltd., Montreal.	Oval Brand.....	1·73	None.	None.	Mixed pickles. Vegetables sound and firm.
" 31	" ..	32640	W. Delorme, 990 Ontario East, Montreal.	3 " ..	45	The T. A. Lyttle Co., Ltd., Toronto.	Sterling Brand....	2·24	None.	None.	" "
" 16	Bulk Pickles....	32641	Ozo Co., Ltd., Montreal.	1 qt....	25	Vendors.....	Sample taken from packed stock.	1·58	None.	None.	" "
" 16	" ...	32642	J. A. Perrault & Cie, Montreal.	1 "	25	"	" ..	1·66	None.	None.	" "
" 28	"	32643	J. D. Boileau, 54 Bonsecour st., Montreal	1 "	20	Not known.....	.....	3·00	Present.	None.	" "
" 29	"	32644	M. F. Lafortune, 168 St. Maurice st., Montreal.	1 "	25	J. A. Perrault & Co., Montreal.	.....	2·09	None.	Sulphurous acid.	" "
" 29	"	32645	The Wm. Davies Co., Ltd., Chabolize Square, Montreal.	1 "	30	Vendors.....	.....	1·78	None.	None.	" "
DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.											
July 11	Bottled Pickles..	22679	Coburn & Co., Pembroke, Ont.	3 bots..	38	The Wm. Davies & Co., Ltd., Toronto, Ont.	Davies Spiced Mixed Pickles.	2·24	None.	None.	Mixed pickles. Vegetables sound and firm.
" 14	" .	22680	Mrs. E. E. Harkness, Iroquois.	3 " ..	30	J. A. Perrault & Co., Montreal.	Select Home brand Pickles, mfg. at 40 Plessis St., Montreal.	2·29	None.	None.	" "

"	18	"	22681	John Simpson & Son, Alexandria.	3	"	45	Carter, Galbraith & Son, Montreal.	....	....	2·04	None.	None.	"	"
"	23	"	22682	J. W. McDonald, Carleton Place.	3	"	75	Holbrook, Ltd., Toronto.	Pure Pickles prepared in pure malt vinegar.		3·67	None.	None.	"	"
"	25	"	22683	J. H. Shaw, Shawville, P.Q.	3	"	45	Sugars & Canners, Ltd., Montreal	Diamond Brand pickles. Canadian product.		1·88	None.	None.	"	"
"	22	Bulk Pickles....	22684	D.A.Younghusband, Elgin St., Ottawa, Ont.	1	qt.	30	T. A. Lyttle & Co., Toronto.	Labelled Sweet Mixed Pickles.		1·78	None.	None.	"	"
"	22	"	22685	Lavigne Bros., Cor Queen&BridgeSts., Ottawa, Ont.	1	"	15	F. J. Castle & Co., Ottawa.	Lion L. Brand Mixed Pickles.		2·00	None.	Salicylic acid.	"	"
"	22	"	22686	Kennedy & Co., Wellington St., Ottawa, Ont.	1	"	20	T. A. Lyttle & Co., Toronto.	Mixed Pickles		2·19	None.	None.	"	"
"	21	"	22687	A. P. Jounson, Bronson Ave., Ottawa, Ont.	1	"	30	Heinz.....	Heinz Sweet Mixed Pickles.		1·83	None.	None.	"	"
"	21	"	22688	Ellis Bros., Bronson Ave., Ottawa, Ont.	1	"	35	"	.....		1·73	None.	None.	"	"

DISTRICT OF KINGSTON—J. HOGAN, INSPECTOR.

July	20	Bottled Pickles..	35285	Kelly Bros., Kingston.	3	bots	45	T. A. Lyttle & Co., Toronto.	.....		2·04	None.	None.	Mixed pickles. Vegetables sound and firm.	
"	20	"	35286	J. McCulla, Kingston.	3	"	45	Canada Pickling Co., Toronto.	.....		2·29	None.	Sulphurous acid.	"	"
"	21	"	35287	Anderson Bros., Kingston.	3	"	30	" "	.....		2·00	None.	Sulphurous acid.	"	"
"	21	"	35288	C. H. Pickering, Kingston.	3	"	45	H. J. Heinz, Pittsburgh, U.S.	.....		2·65	None.	Sulphurous acid.	Chow Chow. Vegetables sound and firm.	
"	21	"	35289	C. Sunderson, Kingston.	3	"	45	C. Williams, Toronto.	.....		1·73	None.	None.	Mixed pickles. Vegetables sound and firm.	
"	20	Bulk Pickles....	35290	James Redden, Kingston.	1	qt.	15	H. Loch, Guelph	.....		2·14	None.	None.	"	"
	20	"	35291	J. McCulla, Kingston.	1	"	35	T. A. Lyttle & Co., Toronto.	.....		2·00	None.	None.	"	"
	21	"	35292	Anderson Bros., Kingston.	1	"	20	" "	.....		0·61	None.	None.	Mixed pickles. Vegetables mouldy. Another bottle of this brand was sound.	
	21	"	35293	C. H. Pickering, Kingston.	1	"	30	H. J. Heinz, Pittsburgh, U.S.	.....		1·78	None.	None.	Mixed pickles. Vegetables sound and firm.	
"	21	"	35294	J. Cullen, Kingston.	1	"	20	T. A. Lyttle & Co., Toronto.	.....		2·60	None.	None.	"	"

BULLETIN 163—PICKLES.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer of Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis. Acetic anhydride per 100 cc.	Results of Analysis. Alum.	Results of Analysis. Preservatives.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.											
1908.											
July 29	Bottled Pickles.	35124	John Callicott, Queen St. West, Toronto.	3 bots.	30	John Callicott, Toronto.	The Genuine John Bull Pickles.	1·94	Present.	Salicylic acid.	Mixed pickles. Vegetables sound and firm.
Aug. 5	" ..	35125	J. L. Brown, McNabb St. North, Hamilton.	3 " ..	60	Thos. Lipton, Kent, London, England.	Lipton's Choice Mixed Pickles.	3·57	None.	None.	" " ..
" 7	" ..	35126	Willard & Co., Queen St., Port Perry.	3 " ..	45	Canada Pickling Co., Toronto.	Mixed pickles, Keystone Brand.	2·09	None.	None.	" " ..
" 7	" ..	35127	C. H. Crysdale & Son, Simcoe St., Oshawa.	3 " ..	45	H. J. Heinz Co., Pittsburgh, U.S.	Heinz Mixed Pickles.	2·96	None.	None.	" " ..
" 8	" ..	35128	Mathison Bros., Dundas St., Whitby.	3 " ..	75	Maconochie Bros., Ltd., London, Eng.	Maconochie's Extra Special Pickles.	2·70	None.	None.	" " ..
July 28	Bulk Pickles....	35129	The Wm. Davies Co., Ltd., Market Branch, Toronto.	1 quart.	25	The Wm. Davies Co., Ltd., Toronto.	....	1·68	None.	None.	" " ..
" 28	"	35130	The T. A. Lyttle Co., Ltd., Sterling Road, Toronto.	1 " ..	25	Vendors...	....	1·94	None.	None.	" " ..
" 31	"	35131	Welsh & Co., St. Catherines.	1 " ..	15	The Ozo Co., Ltd., Montreal, Que.	Labelled, Mixed Pickles, Lion L Brand.	1·71	None.	None.	" " ..
Aug. 4	"	35132	G. Ante, Mary St., Hamilton.	1 " ..	15	Vendor..... ..	....	1·58	Trace in ash.	None.	" " ..
" 11	"	35133	T. H. Taylor, Niagara Falls.	1 " ..	25	H. J. Heinz Co., Pittsburg, U.S.	....	1·86	"	None.	" " ..

DISTRICT OF LONDON—T. KIDD, INSPECTOR.

July	15	Bottled Pickles.	20942	P. J. Dean, Goderich	3 bots	45	H. P. Eckart, Toronto.		2·35	None	None.	Mixed pickles. Vegetables sound and firm.
"	16	"	30943	Peter Dill, Dublin	3 "	30	John Sloan & Co., Toronto.		2·80	None.	Salicylic acid.	Mixed pickles. Vegetables sound and firm.
"	16	"	30945	T. J. Molyneaux, Dublin.	3 "	45	M. Masuret, London.		2·04	None.	None.	" " "
"	21	Pickled Olives	30954	John W. Lloyd, Stratford.	3 "	30	Canada Spice & Grocery Co.		0·07	None.	None.	Pickled olives. Vegetables sound and firm.
"	21	Bottled Pickles	30955	Walsh Bros., Stratford.	3 "	45	David & Hay, Toronto.		1·94	None.	None.	Mixed pickles. Vegetables sound and firm.
"	22	Bulk Pickles	30961	Carling Bros., Exeter	1 quart	30	Edward Adams, London.		1·63	Present.	None.	" " "
"	22	Bottled Pickles.	30963	Jones & Clark, Exeter	3 bots	45	A. M. Smith Co., London.		1·43	None.	None.	" " "
"	23	Bulk Pickles	30964	William Linden, Clinton.	1 quart	20	Not known		2·45	None.	None.	" " "
"	29	Bottled Pickles	30967	George Thompson, Brussels.	3 bots	45	"		2·00	None	None.	" " "
"	31	Bulk Pickles	30971	J. M. Adam, St Mary's.	1 quart	30	H. P. Eckart & Co., Toronto.	Heinz's Pickles	2·00	None.	None.	" " "

DISTRICT OF WINDSOR—J. TALBOT, INSPECTOR.

Aug.	11	Bottled Pickles.	34591	John Diprose, London.	3 bots	30	Canada Pickling Co., Toronto.	Shield Brand	1·88	None.	Salicylicacid	Mixed pickles. Vegetables sound and firm.
"	12	"	34593	G. T. Carley, Lambeth.	3 "	46	" "	Chow Chow	2·44	None.	Salicylicacid	Chow Chow. Vegetables sound and firm.
"	12	"	34594	Earle & Son, Lambeth.	3 "	45	Lea, Simcoe		1·63	None	None.	Mixed pickles. Vegetables sound and firm.
"	13	"	34596	J. C. Best, Strathroy	3 "	30	J. C. Williams & Co., Toronto.		1·28	None.	None.	Mixed pickles.
"	13	Bulk Pickles	34597	Wm. Cross, Strathroy	3 jars	67	H. J. Heinz, Toronto		1·22	Trace in ash.	None.	" "
"	14	"	34602	J. P. Rogers, St. Marys.	3 "	45	Ozo Co., Montreal		2·12	None.	None.	" "
"	28	"	34605	Alfred Delage, Chatham.	3 "	45	Chas. Denne, Newmarket.		2·09	None.	None.	" "
"	28	"	34606	Wm. Anderson, Chatham.	3 "	47	Heinz Pickling Co., Toronto.		1·83	None.	None.	" "
"	28	"	34607	" "	3 "	62	" "	Sweet pickles	2·04	Present.	None.	" "

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis. Acetic anhydride per 100 cc.	Results of Analysis. Alum.	Results of Analysis. Preservatives.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.											
1908.											
July 21	Bottled Pickles..	33167	Blackwood's, Ltd., Winnipeg.	3 bots ..	60	Vendors.....	Blackwood's sour mixed pickles. Reg. trade mark "B.B." prepared from natures vegetables.	3·00	None.	None.	Mixed pickles. Vegetables sound and firm.
" 21	" ..	33168	" " ..	3 " ..	60	"	Blackwood's Chow Chow pickles prepared from choice Manitoba vegetables.	1·42	None.	None.	Chow Chow. Vegetables sound and firm.
" 21	" ..	33169	The White Star Mfg. Co., Winnipeg.	3 " ..	41	"	Mixed pickles.....	2·65	None.	None.	Mixed pickles. Vegetables sound and firm.
" 21	" ..	33170	" " ..	3 " ..	53	"	Sweet mixed.....	2·09	None.	None.	" "
" 22	" ..	33171	The Dyson Co., Winnipeg.	3 " ..	35	"	Mixed pickles.....	2·29	None.	None.	" "
" 21	Bulk Pickles....	33172	Blackwood's, Ltd., Winnipeg.	1 qt	15	"	.....	3·16	None.	None.	" "
" 21	"	33173	The White Star Mfg. Winnipeg.	1 "	25	"	Chow Chow pickles	3·21	None.	None.	Chow Chow. Vegetables sound and firm.
" 21	"	33174	" " ..	1 "	25	"	Sour pickles	2·65	None.	None.	Mixed pickles. Vegetables sound and firm.
" 22	"	33175	The Dyson Co., Winnipeg.	1 "	50	"	Cucumber pickles.	2·93	None.	None.	Pickles. Vegetables sound and firm.
" 22	"	33176	" " ..	1 "	50	"	Cauliflower pickles	2·29	None.	None.	" "

DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.

Aug.	17	Bottled Pickles..	35331	Spencer & Todd, Medicine Hat.	3 bots.	75	H. J. Heinz Co., Pittsburgh, U.S.A.		2·65	None	None.	Mixed pickles. Vegetables sound and firm.	
"	19	" ..	35332	Hudson Bay Co., Lethbridge.	3 " ..	90	Unknown		3·00	None.	None.	"	"
"	22	" ..	35333	Wilkin & Jones, Fort Saskatchewan.	3 "	75	Dyson Co., Winnipeg		2·14	None.	None	"	"
"	25	" ..	35334	Hudson Bay Co., Edmonton.	3 " ..	75	White Star Mfg. Co., Winnipeg.		2·45	None	None.	"	"
"	22	" ..	35335	Shera & Co., Fort Saskatchewan.	3 "	1 20	Dyson Co., Winnipeg		1·91	Present.	None.	"	"
"	14	Bulk Pickles....	35336	Peoples Co-op. Soc. Co., Calgary.	1 qt ...	35	Heinz Co., Pittsburgh.		...	None	None	"	"
"	14	"	35337	S. G. Treeye, Calgary	1 "	60	" "		1·83	None	None	Pickles. Vegetables sound and firm.	
"	14	"	35338	Copas & Emerson, Calgary.	1 "	50	" "		1·27	None.	None.	"	"
"	11	"	35339	Calgary Milling Co., Calgary.	1 " ..	25	Dyson Co, Winnipeg		3·21	None.	None.	Mixed pickles. Vegetables sound and firm.	
"	14	" ...	35340	Wood & Green, Calgary.	1 " ..	90	H. J. Heinz Co., Pittsburgh, U.S.		1·83	Present.	None.	"	"

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

Aug.	4	Bottled Pickles..	34330	Empress Mfg Co., Vancouver.	3 bots.	45	Vendors.		1·63	Present.	None.	Mixed pickles. Vegetables sound and firm.	
"	4	Bulk Pickles....	34331	" " ..	1 qt...	35	"		2·19	None.	None.	"	"
"	5	" ...	34332	A. & C. Grocery, Vancouver.	1 " ...	40	H. J. Heinz, Pittsburgh, U. S.		2·44	None.	None.	"	"
"	5	"	34333	The Woodward Dept. Stores, Vancouver.	1 "	60	Libby, McNeil & Libby, Chicago, Ill., U.S.		2·04	None.	None.	"	"
"	6	"	34334	J. Donald & Co., Vancouver.	1 "	40	Brady Houston Co., Victoria, B.C.		1·38	Trace in ash.	None.	"	"
"	10	" ..	34335	A. MacDonald Co., Vancouver.	1 "	75	The White Star Mfg. Co., Winnipeg, Man.	White Star Brand. Choice.	2·50	None.	None.	"	"
"	10	Bottled Pickles..	34336	Foran Bros., Vancouver.	3 bots ..	75	Thos. Lipton, London, Eng.		2·96	None.	Sulphurous acid 0·007 per 100 cc.	Chow Chow. Vegetables sound and firm.	
"	10	" ..	34337	W. Clark, Vancouver	3 " ..	75	Rowat & Co., Glasgow and Liverpool.		1·91	None.	None.	Mixed pickles. Vegetables sound and firm.	
"	11	" ..	34338	Ideal Grocery, Vancouver.	3 " ..	75	The Wm. Davies Co., Ltd., Toronto, Can.		1·99	Present in tissue and ash.	None.	"	"
"	11	" ..	34339	Hudson Bay Co., Vancouver.	3 "	1 20	Flaccus Bros., Wheeling W., V.A., U.S.		2·40	None.	Salicylicacid	"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer of Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis.			Remarks and Opinion of the Chief Analyst.	
				Quantity.	Cents.			Acetic anhydride per 100 cc.	Alum.	Preservatives.		
DISTRICT OF VICTORIA—D. O. SULLIVAN, INSPECTOR.												
1908.												
July 25	Bottled Pickles..	34945	Windsor Grocery Co.	3 bots..	1 05	Crosse & Blackwell, London, Eng.	Mixed pickles.....	2·68	None	None.	Mixed pickles. Vegetables sound and firm.	
" 25	" ..	34946	" " ..	3 " ..	1 20	H. J. Heinz, Pittsburgh, U.S.	Heinz preserved sweet mixed pickles.	2·80	None.	None.	"	"
" 22	" ..	34948	W. K. Houston & Co.	3 "	60	Vendors..... ...	.....	1·73	None.	None.	"	"
" 22	Bulk Pickles..	34949	" " ..	1 qt....	40	"	Taken from barrel in factory.	2 60	None.	None.	"	"
" 22	Bottled Pickles..	34950	Saunders Grocery Co., Ltd.	3 bots..	1 00	Holbrook & Co., London, Eng.	....	3·47	None.	None.	"	"
" 22	" .	34951	" " ..	3 " ..	60	W. L. Lovegrove & Co., London, Eng.	.....	2·00	None.	None.	"	"
" 25	Bulk Pickles....	34954	Dixi H. Ross Co....	1 qt....	50	Libby, McNeil & Libby, Chicago, Ill.	....	1·99	None.	None.	"	"
" 23	"	34959	Fred Carne	1 " ..	35	H. J. Heinz, Pittsburgh, U.S.	....	1·79	None.	None.	"	"
" 23	" .. .	34968	W. B. Hall	1 " ...	40	" . ..	....	1·73	None.	None.	"	"
" 24	"	34972	Dixi H. Ross Co....	1 "	50	" " ..	....	1·91	None.	None.	"	"

APPENDIX N.

BULLETIN No. 164—CANNED MEATS.

Ottawa, October 10, 1908.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I have the honour to report upon 76 samples of Canned Meats, collected throughout Canada in August last. These samples may be classified as follows:—

	Samples
Boneless Chicken	4
" Turkey	2
Brawn	1
Corned Beef	11
Devilled Chicken	2
" Ham	6
Jellied Veal	1
Loaf Beef	1
" Chicken	3
" Ham	4
" Veal	6
Lunch Ham	2
" Tongue	2
Melrose Paste	1
Pork and Beans	1
Potted Beef	1
" Chicken	2
" Duck	1
" Ham	2
" Mixed Meats	3
" Pheasant	1
" Sausage	1
" Tongue	5
" Turkey	5
" Veal	2
Roast Beef	3
" Mutton	2
Smoked Beef	1
Total	76

With a single exception (No. 34328, Potted Pheasant) these have been found in perfect condition of preservation. The exceptional sample, being 'game,' may be in such condition as consumers of the article prefer.

Boracic acid is the only preservative found in any of the above; and it is present in 28 samples, or nearly 37 per cent of the collection. In no case is the amount present above one-half of one per cent of the weight of the sample.

Canned meats form the subject of Bulletin No. 85 (June, 1903), when 99 samples were reported; and of Bulletin No. 123 (July, 1906), when 322 samples were reported upon.

In this Bulletin, the late chief analyst suggested the possibility of cereal products being used in the potted or devilled meat preparations; and for the purpose of investigating this point, a further study of 90 samples of potted meats, selected from the same samples reported in Bulletin 123, together with 41 samples of sausages collected in July and August, 1906, was made, and reported in Bulletin No. 125 (September 1906).

All of the potted meats were found to give reactions for starch; and the inference was perhaps too hurriedly drawn, that these contained added cereals. In certain of these samples, the microscope proved maize and potato starches present; and this undoubtedly constitutes adulteration, when not acknowledged on the label. The mere finding of starch, in potted meat, is not, however, to be regarded as implying fraudulent addition of such. Many spices contain starch (pepper about 50 per cent); and these meat preparations are all highly spiced. The various cooking processes to which they are subjected result in such changes in the starch as to make it difficult, if not impossible, to identify the starches specifically.

The question, how much starch may legitimately be present in these articles is a difficult one to solve. In the present case, the starch has been quantitatively estimated in all samples, with the following results:—

	Samples.
No starch, or traces only	46
Below 1 per cent of starch	17
Between 1 and 2 per cent	5
Above 2 per cent	8

All of the samples containing above 2 per cent of starch are sold as 'loaf' meats; with exception of the sausage.

The actual amounts of starch found in these samples (by hydrolysis and determination as dextrose) are as follows: —

No.	Name.	Manufacturer.	Starch.
31311	Veal Loaf	Libby: McNeil & Libby	2·79
31214	Ham Loaf	" " "	4·90
31215	Chicken Loaf	G. H. Hammond & Co.	3·26
32620	Ham Loaf	Libby, McNeil & Libby	5·36
22665	Veal Loaf	" " "	6·57
35297	Sausage	W. Clark	4·06
35319	Beef Loaf	Libby, McNeil & Libby	2·05
35316	Ham Loaf	" " "	4·08

So far as taste is concerned, the devilled and potted meats appear to be more highly spiced than the so called 'loaf' preparations. None of these yield more than two (2) per cent of starch; the majority of them contain much less than 2 per cent Hence it seems fair to infer that starch, in other forms than as spices has been introduced into the so-called 'loaf' meats. *Leach* (Food Inspection, &c., p. 185) says 'One per cent, or more of starch present, may be due to the pepper and spices used in seasoning the sausage.'

As already pointed out (Bull. 125, p. 6) it may be that the word 'loaf' is intended to convey an implication of the use of cereals in their preparation. If such is the case, a clear definition of the term 'meat loaf' is desirable. No objections, upon the ground of wholesomeness can be taken to the addition of small amounts of flour, and it may be that the consistency desired by the manufacturer requires the use of gelatinized starch to give necessary coherence to the product.

I beg to recommend the publication of this report as Bulletin No. 164.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis. Starch. p. c.	Preservatives present.	Condition of sample.
DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.										
1908.								p. c.		
Aug. 6	Potted Ham	33531	Wentzells, Limited, Halifax, N.S.	3 tins	15	W. Clark, Montreal, Can.	Sold as Potted Ham	Trace.	Boric acid.	Good.
" 7	Devilled Chicken	33532	Crey & Hodgson, Halifax, N.S.	3 "	24	Libby, McNeil & Libby, Chicago, Ill., U.S.	Sold as Devilled Chicken.	1·77	None.	"
" 7	Potted Turkey	33533	Jas. Hogan, Halifax, N.S.	3 "	30	W. Clark, Montreal, Can.	Sold as Potted Turkey	Trace.	Boric acid.	"
" 7	" Tongue	33534	Rooney & Lovitt, Halifax, N.S.	3 "	25	Libby, McNeil & Libby, Chicago, Ill., U.S.	Sold as Potted Tongue	0·12	None.	"
" 7	" Turkey	33535	Wm. Moore, Halifax, N.S.	3 "	15	Laing Packing Co., Montreal, Can.	Sold as Potted Turkey	0·13	Boric acid.	"
DISTRICT OF PRINCE EDWARD ISLAND—T. MOORE, INSPECTOR.										
July 28	Veal Loaf	31311	John McKenna, Charlottetown.	3 tins	45	Libby, McNeil & Libby, Chicago.	The best veal loaf	2·79	None.	Good.
" 28	Devilled Ham	31312	W. A. McLeod, Charlottetown.	3 "	45	W. Clark, Montreal	Devilled Ham	Trace.	Boric acid.	"
Aug. 3	"	31213	A. Bowness, Kensington	3 "	45	Libby, McNeil & Libby, Chicago.	Devilled Ham. Highest awards.	"	None.	"
" 4	Ham Loaf with Beef and Pork.	31214	Waugh & Steeves, Summerside.	3 "	54	" "	Ham Loaf, with Beef and Pork.	4·90	"	"
" 5	Chicken Loaf	31215	Sanderson & Co., Charlottetown.	3 "	75	G. H. Hammond & Co., Chicago.	The contents of this package is of superior quality. Carefully selected and inspected according to law.	3·26	"	"

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.

July	17	Devilled Ham	29743	Baird & Peters, St. John, N.B.	3 tins.	18	W. Clark, Montreal	Labelled, Devilled Ham. Canada approved.	0·63	Boric acid.	Good.
"	24	Potted Tongue	29744	The F. E. Williams Co., Ltd., St. John, N.B.	3 "	30	The G. H. Hammond Co., Hammond, Indiana, U.S.	Labelled, The G. H. Hammond Co.'s Coin Special Potted Tongue. Guaranteed.	Trace.	None.	"
"	6	Devilled Chicken	29745	George Stables, Newcastle, N.B.	3 "	30	W. Clark, Montreal, Can.	Labelled, Devilled Chicken.	"	Boric acid.	"
"	7	Potted Turkey	29746	J. B. Snowball Co., Ltd., Chatham, N.B.	3 "	15	The Laing Packing & Prov. Co., Montreal, Can.	Labelled, Potted Turkey, 'Anchor Brand.'	1·07	"	"
"	14	"	29747	W. A. Estabrook, Fredericton, N.B.	3 "	45	Libby, McNeill & Libby, Chicago, U.S.A.	Labelled, Libby's Peerless Brand Potted Turkey. Contents of tin guaranteed.	1·25	None.	"

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

July	17	Lunch Tongue	26479	Philippe Gagnon, Baie St. Paul.	3 bots.	1 05	Whitead & Turner, Quebec.		None.	None.	Good.
"	17	Corned Beef	26480	" "	3 "	48	" "		"	"	"
"	17	Lunch Ham	26483	Urbain Bolduc, Baie St Paul.	3 "	60	J. B. Bedard & Frère, Quebec.		"	Boric acid.	"
"	17	Corned Beef	26484	" "	3 "	90	" "		"	None.	"
"	17	Prime Roast Beef	26485	F. Boivin, Baie St. Paul	3 "	75	N. Rioux & Cie, Quebec.		"	"	"

DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.

July	29.	Roast Mutton	170	O. A. Jarry, St. Pie, Bagot.	3 boxes.	60	Wm. Clark, Montreal		None.	Boric acid.	Good.
Aug.	3.	Lunch Ham	171	N. Lindsay, Drummondville.	3 "	75	" "	Labelled 'Canada Approved.'	None.	None.	"
"	4.	Potted Veal	172	C. H. Dingman, Eastman.	3 "	35	" "		Trace.	Boric acid.	"
"	6.	Tongue, Ham and Veal	173	M.G. Smith, Lac Megantic	3 "	30	" "		0·24	Boric acid.	"
"	11.	Roast Beef	174	F. N. Chagnon, Sorel	3 "	60	The Laing Packing & Prov. Co., Montreal.		None.	Boric acid.	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis. Starch.	Preservatives present.	Condition of Sample.
DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.										
1908.										
July 14.	Boneless Chicken	32616	P. Daoust, 110 St. Catherine E., Montreal.	3 tins	90	Simcoe Canning Co.		None.	None.	Good.
" 14	Corned Beef	32617	The Laing Packing and Prov Co., Montreal.	3 "	45	Vendors.		None.	None.	"
" 14	"	32618	W. Clark, Amherst St., Montreal.	3 "	40	Vendor	Sample taken from stock in warehouse.	None.	None.	"
" 14	Devilled Veal	32619	" "	3 "	25	"	" "	Trace.	Boric acid.	"
" 17	Ham Loaf	32620	A. O. Galarneau, 624 Wellington St., Montreal.	3 "	45	Libby, McNeil & Libby, Chicago.		5·36	None.	"
DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.										
July 14.	Boned Turkey	22663	C. Whitney & Son, Prescott, Ont.	3 tins	75	Van Camp Packing Co., Indianapolis Ind.	Labelled Van Camp's Boned Turkey.	None.	None.	Good.
" 21.	Tongue, Ham and Veal	22664	McDonald Bros., 441 Gladstone Ave., Ottawa.	3 "	30	F. J. Castle Co., Ottawa, Ont.	Labelled Tongue, Ham and Veal. Mfg. by Wm. Clark, Montreal.	0·73	Boric acid.	"
" 22.	Veal Loaf	22665	T. R. Davies, 287 Rideau St., Ottawa.	3 "	60	Bate & Co., Ottawa, Ont.	Labelled Libby's Veal Loaf. "The best Veal Loaf."	6·57	None.	"
" 23.	"	22666	R. Richardson, Carleton Place.	3 "	30	W. Clark, Montreal.	Labelled Clark's ready Lunch Veal Loaf.	1·53	None.	"
" 24	Wild Duck	22667	A. P. Johnson, Bronson Ave., Ottawa.	3 "	15	" "	Labelled Potted Wild Duck.	Trace.	Boric acid.	"

DISTRICT OF KINGSTON—J. HOGAN, INSPECTOR.

July	22.	Corned Beef	35295	W. Davies, Belleville	3 tins	45	Wm. Davies, Toronto	None.	None,	Good.
"	22.	Chicken	35296	S. Fourt, Port Hope	3 "	15	W. Clark, Montreal	Trace.	Boric acid.	"
"	22	Sausage	35297	" "	3 "	45	" "	4·06	None.	"
"	23.	Jellied Veal	35298	G. Matthews, Peterboro	3 "	60	Vendor	None.	None.	"
"	23.	Pork and Beans	35299	" "	3 "	30	"		None.	"

DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.

July	29	Potted Tongue	35134	The Wm. Davies Co., Ltd., Toronto.	3 tins	15	Vendors	Labelled, Potted Tongue, containing Pork, Tongue and Cereal.	0·13	None.	Good.
"	30	Ox Tongue	35135	The Park Blackwell Co., Ltd., Toronto.	3 "	1 95	"	Labelled, Prime Ox Tongue, quality guaranteed.	None.	"	"
"	31	Cooked Corn Beef	35136	John Ross, St. Catherines.	3 "	45	Wm. Clark, Montreal, Can.	Labelled, Clark's Cooked Corned Beef. Warranted to keep in any climate.	"	"	"
Aug.	5	Chicken Loaf	35137	Jno. O. Carpenter, Hamilton.	3 "	60	Armour & Co., Chicago	Labelled, Trade Mark, 'Veribest Chicken Loaf.'	0·64	"	"
"	7	Boned Turkey	35138	E. H. Purdy, Port Perry	3 "	1 05	Aylmer Canning Co., Ltd., Aylmer.	Labelled, Boned Turkey, Extra Quality, A.C.Co.	None.	"	"

DISTRICT OF LONDON—T. KIDD, INSPECTOR.

July	15	Boned Chicken	30941	Charles A. Nairn, Goderich.	3 tins	1 00	Aylmer Canning Co., Aylmer.		None.	None.	Good.
"	20	Veal Loaf	30946	Richard Smyth, Seaforth	3 "	45	W. Clark, Montreal		0·88	Boric acid.	"
"	20	Smoked Beef (sliced)	30947	Cardin Bros., Seaforth	3 "	45	A. M. Smith & Co., London, Ont.		None.	None.	"
"	20	Potted Beef	30948	Charles Andrews, Seaforth.	3 "	30	W. Davies & Co., Toronto.		0·68	"	"
"	21	Cooked Corned Beef	30957	The Barnsdale Trading Co., Stratford, Ont.	3 "	45	W. Clark, Montreal		None.	"	"
"	22	Ham, Tongue and Veal	30959	W. C. Davis, Hensall	3 "	30	W. H. Gillard & Co., Hamilton, Ont.		0·63	Boric acid.	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis.		
				Quantity.	Cents.			Starch.	Preservatives present.	Condition of Sample.
DISTRICT OF WINDSOR—JOHN TALBOT, INSPECTOR.										
1908.										
July 20	Canned Meat	34582	Wm. Davies Co., London	3 tins	90	Wm. Davies & Co., Toronto.		None.	None.	Good.
" 20	Canned Beef	34583	Can. Packing Co., London.	3 "	45	Vendors	Corned Beef	"	Boric acid	"
Aug. 13	"	34599	O'Dwyer & Jay, Strathroy.	3 "	45	Clark Packing Co., Montreal.	"	"	None.	"
" 14	Brawn	34600	Fenwick & Son, St. Mary's.	3 "	45	Can. Packing Co., London.	Labelled, Brawn.	"	Boric acid.	"
" 14	Ham Loaf	34603	J. M. Adam, St. Mary's.	3 "	45	Wm. Clark, Montreal	Labelled, 'Ham Loaf'	0·73	None.	"
DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.										
Aug. 10	Veal Loaf	33197	J. G. McLean & Co., Pilot Mound.	3 cans	1 30	W. Clark, Montreal	Ready Lunch Veal Loaf	1·30	Boric acid.	Good.
" 10	Boneless Chicken	33198	" "	3 "	1 05	The Manitoba Canning Co., Grand Point, Manitoba.	Boneless Chicken. Trade mark. Tricolor trade mark.	None.	None.	"
" 11	Potted Ham	33199	R. A. Garrett & Co., Manitou.	3 "	30	W. Clark, Montreal	Potted Ham	Trace.	Boric acid.	"
" 11	Potted Turkey	33200	" "	3 "	30	"	Potted Turkey	"	"	"
" 12	Veal Loaf	35701	Thos. Hartley, Winnipeg.	3 "	45	Libby, McNeil & Libby, Chicago, U.S.A.	Veal Loaf with Beef and Pork.	0·77	None.	"

DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.

Aug.	17	Canned Meats	35316	Spencer & Todd, Medicine Hat.	3	tins.	50	Libby, McNeil & Libby, Chicago.	Ham Loaf.	4·08	None.	Good.
"	19	"	35317	Hudson Bay Co., Lethbridge.	3	"	60	" "	Chicken Loaf	0·73	None.	"
"	22	"	35318	Wilkin & Jones, Fort Saskatchewan.	3	"	25	W. Clark, Montreal	Devilled Ham.	Trace.	Boric acid.	"
"	25	"	35319	Hudson Bay Co., Edmonton.	3	"	50	Libby, McNeil & Libby, Chicago.	Beef Loaf.	2·05	None.	"
"	25	"	35320	" "	3	"	30	Manitoba, Canning Co., Grand Point.	Potted Chicken	0·36	None.	"

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

July	31	Devilled Ham	34325	A. J. McFarline, Fairview, Vancouver.			45	W. Clark, Montreal.		0·40	Boric acid.	Good.
"	31	"	34326	S. Bell, Vancouver	3	"	40	W. Davies, Toronto.		0·73	None.	"
"	31	Melrose Paste	34327	W. H. Welsh, Vancouver.	3	"	15	Libby, McNeil & Libby, Chicago.		0·98	None.	"
Au.	1	Potted Pheasant	34328	J. McTaggart, Vancouver.	2	jars.	60	Peck, Snow Hill, London, Eng.	'Archer brand.'	Trace.	Boric acid.	Decomposed.
"	1	Potted Tongue	34329	S. Wright, Vancouver.	3	tins.	60	Armour Packing Co., Kansas City, U.S.	'Helmet brand.'	Trace.	None.	Good.

DISTRICT OF VICTORIA—D. O. SULLIVAN, INSPECTOR.

July	21	Roast Beef	34940	Windsor Grocery Co	3	tins	75	Clark, Montreal, P.Q	Clark's Cooked English Roast Beef.	None.	Boric acid.	Good.
"	21	Corned Beef	34941	" "	3	"	40	The Laing Packing & Prov. Co., Montreal, P.Q.	Laing's Compressed Cooked Corn Beef.	None.	Boric acid.	"
"	21	Roast Mutton	34942	" "	3	"	75	The Union Canning Works, Sydney, N.S.	Union Brand Roast Mutton.	None.	None.	"
"	21	Lunch Tongue	34943	" "	3	"	105	The Laing Packing & Prov. Co., Montreal, P.Q.	Laing's Lunch Tongue	None.	None.	"
"	21	Boneless Chicken	34944	" "	3	"	105	The Delhi Canning Co., Montreal, P.Q.	Boneless Chicken	None.	None.	"

APPENDIX O.

BULLETIN No. 165—GROUND PEPPER.

OTTAWA, October 17, 1908.

W J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR,—I beg to hand you herewith a report upon the examination of 298 samples of ground pepper, being 146 samples sold as white pepper and 152 samples sold as black pepper. This collection was made throughout Canada in May and June of the present year.

The results of analysis may be summarized as follows:—

WHITE PEPPER.

(See Table I.)

Genuine, 106; doubtful, 8; adulterated, 32—total, 146.

BLACK PEPPER.

(See Table II.)

Genuine, 110; doubtful, 5; adulterated, 37—total, 152.

It thus appears that 21·9 per cent of the white pepper samples and 24·34 per cent of the black peppers are adulterated.

The last report upon ground pepper is contained in Bulletin No. 106, of August, 1905. This Bulletin contains a synopsis of the inspection work done upon pepper since the Adulteration Act came into force. The subjoined table, showing the total results of inspection for the different inspectoral districts, is taken from Bulletin 106, page 6.

FROM PERIOD 1877 TO 1905.

District.	Samples Examined.	Adulterated.	Percentage of Adulteration.
Nova Scotia	140	40	28
New Brunswick	118	70	60
Prince Edward Island	34	8	24
Quebec	186	94	51
St. Hyacinthe	34	28	82
Montreal	279	203	72
Kingston	90	47	85
Toronto	212	89	42
London	90	33	36
Manitoba	82	26	31
Calgary	31	15	50
British Columbia	52	20	33
	1,348	673	50

It will be noted that the present collection indicates a great improvement as compared with previous collections of pepper. While the work of 28 years past shows an average for that period of 50 per cent adulteration, the present collection contains only about half that percentage. This marked improvement is very gratifying, but it must be acknowledged that, in spite of it, ground pepper still remains one of the most badly adulterated articles of food in Canada. The recent enforcement in the United States of a strict inspection in food stuffs, and the refusal in several of the States to admit materials imported for the express purpose of adulterating spices, has resulted in attempts on the part of shippers to secure dumping ground for these adulterants.

It cannot be said that any of the substances identified as foreign matter in ground pepper are, in the strict sense, unwholesome; but pepper dust and refuse (ground husks, &c.) are likely to contain many forms of dirt, and are, at least, very undesirable admixtures, while sand, flour, cayenne, cocoanut shells, &c., are, at the best, distinct frauds against the pocket, if not a menace to the stomach of the consumer.

For purposes of comparison by inspectoral districts the following table is of interest.

INSPECTION OF MAY AND JUNE, 1908.

District.	Total Samples Examined.	Genuine.	Doubtful.	Adulterated.	Percentage of Adulteration.
Nova Scotia	20	19	0	1	5
Prince Edward Island	20	15	1	4	20
New Brunswick	20	14	1	5	25
Quebec	23	12	2	9	39
St. Hyacinthe	20	8	0	12	60
Montreal	20	8	2	10	50
Ottawa	20	15	1	4	20
Kingston	20	16	0	4	20
Toronto	20	17	1	2	10
London	18	13	2	3	17
Windsor	17	15	1	1	6
Manitoba	20	11	1	8	40
Calgary	20	17	0	3	15
Vancouver	20	18	1	1	5
Victoria	20	18	0	2	10
	298	216	13	69	23

As pointed out in Bull. 106, it appears that the chief centres of adulteration of pepper are in and about Montreal, although Winnipeg is becoming too prominent in this regard.

I beg to recommend the publication of this report as Bulletin No. 165.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF NOVA SCOTIA—
1908.						
May 12	White Pepper..	38645	John P. Mott & Co., Halifax, N.S.	6 oz....	....	Vendors ....
" 12	" ..	33646	Wentzell's Limited, Halifax, N.S.	6 " ..	15	John P. Mott & Co., Halifax, N.S.
" 13	" ..	33647	Wm. Moore, Halifax, N.S..	8 " .	18	" " ....
" 13	" ..	33648	Jas. Scott & Co., Halifax, N.S.	8 " ..	20	W. H. Schwartz & Sons, Halifax, N.S.
" 13	" ..	33649	Craig & Hodgson, Halifax, N.S.	8 " ..	20	Can. Drug Co., St. John, N.B.
" 13	" ..	33652	E. B. Tracey, Halifax, N.S.	3 pkgs..	45	Todhunter, Mitchell & Co., Toronto, Ont.
" 13	" ..	33653	Dillon Bros., Halifax, N.S..	8 oz....	20	" " ....
" 13	" ..	33654	Nat. Drug & Chemical Co., Halifax, N.S.	12 " ..	21	Vendors ... .
" 14	" ..	33655	J. A. Leaman & Co., Halifax, N.S.	½ lb....	15	W. H. Schwartz & Sons, Halifax, N.S.
" 14	" ..	33656	G. A. Cook & Co., Halifax, N.S.	½ " ..	20	Ewing & Sons, Montreal, P.Q.
						DISTRICT OF PRINCE EDWARD ISLAND—
May 14	White Pepper..	31261	Geo. Ruckham, Charlottetown.	½ lb....	20	Carvell Bros., Charlottetown.
" 15	" ..	31262	W. W. Walker, Charlottetown.	½ " ..	20	E. H. Schwartz & Co., Halifax, N.S.
" 15	" ..	31263	T. T. Mahar, Charlottetown.	½ " ..	20	Carvell Bros., Charlottetown.
" 19	" ..	31264	Mathew & McLean, Souris..	½ " ..	24	Pure Gold Mfg. Co., Ltd....
" 19	" ..	31265	Pool & Thompson, Montague Bridge.	3 pkgs..	36	" " ....
" 21	" ..	31266	W. W. Jenkins, Georgetown.	½ lb	20	W. H. Schwartz & Co., Halifax, N.S.
" 26	" ..	31267	R. T. Holman, Summerside..	½ " ..	20	Dearborn & Co., St. John...
" 26	" ..	31268	C. Kane, Summerside.....	½ " ..	18	Herron & Co., Montreal...
" 28	" ..	31269	R. F. Madigan, Charlottetown.	½ " ..	20	L. Chaput fils & Co., Montreal.
" 28	" ..	31270	T. H. Myrick, Charlottetown.	½ " ..	20	John Tobin & Co., Halifax..
						DISTRICT OF NEW BRUNSWICK—
May 13	White Pepper..	29692	G. E. Barbour & Co., Ltd., 11-12 North Wharf, St. John, N.B.	3 car....	24	G. E. Barbour & Co., Ltd., 11-12 North Wharf, St. John, N.B.
" 15	" ..	29693	Vanwart Bros., 203-205 Charlotte St., St. John, N.B.	1 lb...	50	G. E. Barbour Co., Ltd., St. John, N.B.

SESSIONAL PAPER No. 14

TABLE I.—WHITE PEPPER.

Inspector's Report.	Results of Analysis.					Remarks and Opinion of the Chief Analyst
	Ash, per cent.					
	Water soluble.	Total.	Soluble in acid, (Hydrochloric).	Insoluble in acid, (Hydrochloric) Sand	Microscopical Examination	
R. J. WAUGH, INSPECTOR.						
	p.c.	p.c.	p.c.	p.c.		
Labelled pure	.....	0·78	...	.....	Pepper tissues only	Genuine.
Guaranteed pure	.....	1·04	...	.....	" "	"
Sold as pure	.....	0·76	...	.....	" "	"
"	.....	1·54	...	.....	" "	"
Sold as best White Pepper	.....	0·90	...	.....	" "	"
Labelled 1st quality guaranteed Castor brand, in original pckages.	.....	1·44	...	.....	" "	"
Guaranteed pure labelled on box.	.....	0·70	.....	.....	" "	"
Sovereign brand. Guaranteed pure.	.....	1·04	.....	.....	" "	"
Bought by vendors from manufacturers as pure.	.....	0·98	.....	.....	" "	"
Sold as pure	.....	1·10	1·00	0·10	" "	"
T. MOORE, INSPECTOR.						
.....	.....	1·86	1·58	0·28	Contains wheat flour	Adulterated.
.....	.....	1·20	1·04	0·16	Pepper tissues only	Genuine.
.....	.....	1·84	1·68	0·16	Contains wheat flour	Adulterated.
.....	.....	1·06	1·00	0·06	Pepper tissues only	Genuine.
Warranted no cheap goods nor filler of any kind. Absolutely pure. Guaranteed to please.	.....	1·10	1·04	0·06	" "	"
.....	.....	1·90	1·80	0·10	" "	"
.....	.....	1·92	1·30	0·62	" "	"
.....	.....	1·96	1·62	0·34	Contains maize starch	Adulterated.
.....	.....	1·14	1·04	0·10	Pepper tissues only	Genuine.
.....	.....	3·48	2·80	0·68	Contains wheat flour in very small amount.	Doubtful.
J. C. FERGUSON, INSPECTOR.						
'Acorn Brand.' Labelled, Strictly pure White Pepper. Guarantee. Quality counts.	.....	1·12	.....	...	Pepper tissues only	Genuine.
Bulk from spice drawer in store.	.....	1·04	.....	...	" "	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF NEW BRUNSWICK—
1908.						
May 16	White Pepper ..	29694	Dearbon & Co., 93-95 Prince William St., St. John, N.B.	1 lb.	40	Darborn & Co., 93-95 Prince William St., St. John, N.B.
" 20	" ..	29695	The Sussex Mercantile Co., Ltd., Main St., Sussex, King's Co., N.B.	½ " ...	20	Horace W. Coll, St. John, N B.
" 21	" ..	29696	F. P. Reid & Co., Mechanic St., Moncton, N.B.	3 car. ..	24	Not known..... .....
" 23	" ..	29697	M Bannon, Water St., Newcastle, N.B.	3 bots ..	30	Todhunter, Mitchell, & Co., Toronto, Ont.
" 26	" ..	29698	A. Normand, Des Brisay, King St., Bathurst, N.B	½ lb....	15	Hudon, Hebert & Co., Montreal, P.Q.
" 27	" ..	29699	Geo. G. McKenzie & Co., Main St., Campbellton, N.B.	3 car. ..	30	Bowman & Cole, St. John, N.B.
June 6	" ..	29700	Hatt, Morrison & Co., Queen St., Fredericton, N.S.	3 " ...	30	John P. Mott & Co., Halifax, N.S.
" 6	" ..	29701	G. T. Whelpley, Queen St., Fredericton, N.S.	3 "	30	Todhunter, Mitchell & Co., Toronto, Ont.
						DISTRICT OF QUEBEC—
May 11	White Pepper...	26408	G. Fords & Co., Portneuf...	½ lb.	20	Mathews & Son, Montreal ..
" 12	" ..	26418	T. R. Labranche, Portneuf..	½ "	20	Quebec Preserving, Quebec..
" 12	" ..	26423	Marie Richard, Portneuf....	½ "	17	Whitead & Turner, Quebec..
" 13	" ..	26426	Elzéar Gérard, Cap Santé...	½ " ...	20	N. Turcotte & Co., Quebec..
" 13	" ..	26429	F. X. Paquet, Cap Santé....	½ "	20	Leclerc & Letelier, Quebec..
" 13	" ..	26433	A. Bernard, Cap Santé.	½ " ...	20	A. A. T. Gingras, Quebec...
" 14	" ..	26443	Edmond Germain, St. Basile	½ "	15	T. Davidson & Co., Quebec..
" 15	" ..	26452	D. Belanger, St. Basile.	½ "	20	Langlois & Paradis, Quebec.
" 15	" ..	26454	Samuel Jacques, St. Basile.	½ "	11	N. Turcotte & Co., Quebec..
" 15	" ..	26457	J. T. Marcotte, St. Basile...	½ " ...	10	Whitead & Turner, Quebec..

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TABLE I.—WHITE PEPPER.

Inspector's Report.	Results of Analysis.					Remarks and Opinion of the Chief Analyst.
	Water soluble.	Ash, per cent.			Microscopical Examination.	
		Total.	Soluble in acid, (Hydrochloric).	Insoluble in acid, (Hydrochloric) Sand		
J. C. FERGUSON, INSPECTOR—*Concluded.*						
	p.c.	p.c.	p.c.	p.c.		
Bulk from receiving bin in mill.	....	2·50	.	.	Pepper tissues only	Genuine.
Imported by furnisher from England.	.....	1·58	....	....	"	"
Pyramid Brand. Absolutely pure spices. Pyramid White Pepper ground from the finest imported and selected spices.	0·64	5·20	2·86	1·70	"	Genuine, but outer husk imperfectly removed, and approaches black pepper in character.
'Castor Brand.' Pure spices guaranteed 1st quality, mfd. by Todhunter, Mitchell & Co.	.	0·38	..	.	"	Genuine.
Labelled Pure Ground White Pepper. Hudon, Hebert & Cie.	.....	2·14	....	....	Maize starch and foreign tissues.	Adulterated.
Thistle Brand White Pepper. Bowman & Cole spices are guaranteed pure.	..	1·46	1·36	0·10	Contains wheat flour.....	"
White Pepper guaranteed absolutely pure. Mott's strictly pure pepper.	....	1·70	1·40	0·30	Pepper tissues only	Genuine.
Whelpley's Pure White Pepper. Quality guaranteed.	..	0·90	0·84	0·06	" ...	"
E. BÉLAND, INSPECTOR.						
.....	.....	2·24	.....	....	Pepper tissues only.	Genuine.
.. ..	..	2·56	....	.....	A few foreign starch granules.	Doubtful.
.....	.....	1·14	....	....	Pepper tissues only	Genuine.
... .	..	1·18	.....	....	Contains maize starch (and a little cayenne).	Adulterated.
... .	..	0·84	...	....	Pepper tissues only.....	Genuine.
... .	....	1·00	.....	....	"	"
....	...	23·76	6·80	16·96	This is labelled 'white,' but is a black pepper. Contains wheat flour, cocoanut shells and dirt.	Adulterated.
.....		2·38	.. ..	.....	Contains buckwheat flour.	"
.. ..	...	6·16	3·44	2·72	Contains excess of stone cells; is brown in colour; probably meant for black pepper.	Doubtful.
... .	....	1·10	....	.....	Contains wheat flour.....	Adulterated.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF ST. HYACINTHE—			
1908.						
May 11	White Pepper..	118	J. O. Fagnan, Sorel.....	1 lb....	40	J. J. Duffy & Co., Montreal.
" 12	" ..	119	Nap. Quintin, Iberville.....	1 "	30	Mayell's, Toronto.....
" 13	" ..	120	J. P. Bertrand, Iberville....	1 "	35	Hudon & Orsali, Montreal..
" 13	" ..	121	Chas. Boucher & fils, St. Jean.	1 "	40	Brassard & Simard, St. Jean.
" 14	" ..	122	Isabelle & Rivet, Granby ...	1 "	35	Laporte, Martin & Cie, Montreal.
" 14	" ..	123	P. Larochelle, Farnham.....	1 " ...	40	Hudon & Orsali.....
" 18	" ..	124	A. J. Hudon, Richmond....	1 "	40	F. F. Dally Co., Ltd., Toronto.
" 19	" ..	125	Nazaire Lapointe. Sherbrooke.	1 "	40	Chas. Lefebvre, Sherbrooke.
" 20	" ..	126	Denault Grain & Provision Co., Sherbrooke.	1 "	14	Lyon Silverman, Montreal..
" 22	" ..	127	Adolphe Ménard, St. Hyacinthe.	1 " ...	40	R. O. Brodeur, St. Hyacinthe.
			DISTRICT OF MONTREAL—			
May 11	White Pepper..	32927	Nat. Coffee and Spice Mills, 202 St. Paul St., Montreal.	1 lb....	30	Vendors.....
" 11	" ..	32928	J. A. Simard & Cie, 305 St. Paul St., Montreal.	½ "	10	" .....
" 11	" ..	32929	J. J. Duffy & Co., 375 St. Paul St., Montreal.	½ "	15	" .....
" 11	" ..	32930	S. H. Ewing & Sons, 98 King St., Montreal.	½ "	15	" .....
" 11	" ..	32931	Heron Leblanc, Ltd., 573 St. Paul St., Montreal.	½ "	15	" .....
" 11	" .	32932	J. Labranche, 535 Notre Dame East, Montreal.	½ "	12	" .....
" 12	" ..	32933	J. V. Boudrias, 222 Notre Dame East, Montreal.	½ "	13	" .....
" 12	" ..	32934	Théodore Lefebvre & Co., Gosford St., Montreal.	½ "	10	" .....
" 18	" ..	32936	Geo. Stroud, 529 St. Catherine East, Montreal.	½ "	20	S. H. Ewing & Sons, Montreal.
" 15	" ..	32937	W. C. Forget, St. Agathe de Monts, P.Q.	½ "	20	Hudon, Hébert & Co., Ltd..

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TABLE I—WHITE PEPPER.

Inspector's Report	Results of Analysis.					Remarks and Opinions of the Chief Analyst
	Ash, per cent.					
	Water soluble.	Total.	Soluble in acid (Hydrochloric).	Insoluble in acid (Hydrochloric) Sand	Microscopical Examination.	
J. C. ROULEAU, INSPECTOR.						
	p. c.	p. c.	p. c.	p. c.		
...		1·14	..		Pepper tissues only	Genuine.
...		1·88	1·40	0·48	" "	"
From box marked White Pepper.		3·40	1·28	2·12	Contains wheat flour.	Adulterated.
" "		1·16	0·96	0·20	Pepper tissues only.	Genuine.
...		2·66	1·14	1·52	Contains wheat flour .	Adulterated.
Box marked Pure White Pepper. Opened in my presence.		1·30	..	.....	Pepper tissues only.	Genuine.
Marked Daily's Pure White Pepper.		2·36	..		Contains wheat flour .	Adulterated.
Marked White Pepper		3·16	..		" "	"
Box marked Pure White Pepper, 10 lbs. No. 4571 Z		1·76			Contains maize starch and foreign tissue.	"
....	0·16	3·46	1·20	2·10	Contains wheat flour	"
J. J. COSTIGAN, INSPECTOR.						
(A. Laframboise, proprietor). .		5·50	1·44	2·06	Maize flour...	Adulterated.
. ... .		1·14		...	Pepper tissues only	Genuine.
...		0·98		..	Trace of wheat flour.....	Doubtful.
.. ...		1·14	....	....	Pepper tissues only.....	Genuine.
..		1·60	...		Wheat flour	Adulterated.
Vendor is successor of E. Panchard, Coffee and Spice Mf'r. Sample taken from stock bought from E. P.		2·58			"	"
....		1·10	..		Pepper tissues only.	Genuine.
....		0·88		....	Trace of wheat flour.....	Doubtful.
. ...		1·40	..		Pepper tissues only.....	Genuine.
....		1·82	.		Wheat flour.....	Adulterated.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF OTTAWA—			
1908.						
May 14	White Pepper..	34169	R. E. Powell, cor. Elgin and Gilmour Sts., Ottawa, Ont.	½ lb...	20	Not known ... .
" 14	" ..	34171	W. R. Cummings, Cummings Bridge, Ont.	½ " ...	20	S. J. Major, Ltd., Ottawa, Ont.
" 14	" ..	34172	L. Malette, cor. Dalhousie and Murray Sts., Ottawa..	½ " ...	20	C. H. Cochrane & Co., Ottawa, Ont.
" 15	" ..	34173	F. W. Forde, 189 Rideau St., Ottawa, Ont.	½ " ...	20	" " ..
" 15	" ..	34174	M. T. Pinkerton & Co., cor. Rideau and Dalhousie Sts., Ottawa, Ont.	½ "	20	" " ..
" 16	" ..	34175	T. Lindsay, Ltd., Sussex St., Ottawa, Ont.	½ " ...	18	Not known..... ... .
" 23	" ..	34176	J. G. Higginson, Hawkesbury, Ont.	½ "	20	Pure Gold Mfg. Co., Toronto, Ont.
" 23	" ..	34177	Banford & Dunning, Hawkesbury, Ont.	½ "	20	F. F. Dally & Co., Hamilton, Ont.
" 26	" ..	34178	W. G. Becksted, Morrisburg, Ont.	½ "	20	Not known.....
" 28	" ..	34179	T. Brown & Co., Brockville.	½ "	20	" .. ..
			DISTRICT OF KINGSTON—			
May 12	White Pepper..	35227	J. Harker, Front St., Belleville.	½ lb....	20	R. Greig Co., Toronto.....
" 14	" ..	35228	John Curtis, Port Hope.....	½ "	25	Pure Gold, Toronto.....
" 12	" ..	35229	R. Elvies, Front St., Belleville.	½ "	20	Kelley & Wamsley, Belleville.
" 12	" ..	35230	H. E. Fairfield, Front St., Belleville.	½ "	20	Jno. Sloan, Belleville.....
" 12	" ..	35231	A. J. McCrodan, Front St., Belleville.	½ "	20	Todhunter & Mitchell, Toronto.
" 14	" ..	35232	J. Dunfee, Port Hope	½ "	20	Pure Gold Co., Toronto.....
" 14	" ..	35233	S. Faurt, Port Hope.... ...	½ "	20	The Red Feather Co. (W. H. Gillard) Hamilton.
" 15	" ..	35234	W. J. Roulty, Charlotte St., Peterboro	½ " .. .	20	Dalton, Toronto.... .....
" 15	" .	35235	J. Sutherland, George St., Peterboro.	½ " ...	25	T. Kinner, Hamilton.....
" 15	" ..	35236	Mason Co., George St., Peterboro.	½ "	25	Todhunter & Mitchell, Toronto.

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TABLE I—WHITE PEPPER.

Inspector's Report.	Results of Analysis.					Remarks and opinion of the Chief Analyst.
	Water soluble.	Ash, per cent.			Microscopical Examination.	
		Total.	Soluble in acid (Hydrochloric.)	Insoluble in acid (Hydrochloric) Sand		
J. A. RICKEY, INSPECTOR.						
	p.c.	p.c.	p.c.	p.c.		
Sold as white pepper		1·12			Pepper tissues only.	Genuine.
Said to be imported French pepper. Sold as white pepper.		2·28			A little wheat flour.	Doubtful.
Sold as pure white pepper. After buying chief clerk said it was bought and sold as compound.		2·38			Wheat and other foreign starch.	Adulterated.
Sold as white pepper		2·94			Pepper tissues only.	Genuine.
"		0·98			"	"
"		1·16			"	"
"		0·96			"	"
"		1·20			"	"
"		1·32			"	"
"		1·30	1·16	0·14	Contains wheat flour	Adulterated.
J. HOGAN, INSPECTOR.						
		0·98			Contains wheat flour	Adulterated.
		0·84			Pepper tissues only	Genuine.
		1·28			"	"
		2·06			"	"
		1·00			"	"
		0·92			"	"
		0·94			"	"
		0·94			Contains wheat flour in large amount.	Adulterated.
		2·40			Contains wheat flour	"
		0·96			Pepper tissues only	Genuine.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity,	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF TORONTO—
1908.						
May 11	White Pepper..	35079	T. Postan, Ancaster.....	½ lb....	20	W. H. Gillard & Co., Hamilton.
" 12	" ..	35080	W. Leith, Caledonia.....	½ "	18	Balfour, Smye & Co., Ltd., Hamilton.
" 12	" ..	35081	J. W. Courtnage, Hagersville.	½ "	20	Hamilton Coffee & Spice Co., Ltd., Hamilton.
" 15	" ..	35082	J. S. O'Neil, Welland	½ "	20	Balfour, Smye & Co., Hamilton.
" 15	" ..	35083	R. Greenwood, Port Colborne	½ "	20	Not known..... ....
" 21	" ..	35084	J. H. Wells, Grimsby.	½ "	20	F. F. Daly Co., Ltd., Hamilton.
" 21	" ..	35085	Millen Bros., Stoney Creek..	½ "	18	Balfour, Smye & Co., Ltd., Hamilton.
" 23	" ..	35086	Thos. Harker, Oakville.. ..	½ "	20	McLaren, Ltd., Hamilton...
" 27	" ..	35087	F. C. Brown, East Toronto..	½ " ...	18	Todhunter, Mitchell & Co., Toronto.
" 27	" ..	35088	W. H. Blaylock, East Toronto.	½ "	20	Pure Gold Mfg. Co., Ltd., Toronto.
						DISTRICT OF LONDON—
May 12	White Pepper..	30899	Charles Nairn, Goderich ...	¾ lb....	30	Not known..... . . . .
" 14	" .	30902	Pickard & Fleming, St. Mary's	1 "	40	Canada Spice Co., London, Ont.
" 16	" ..	30907	Beattie Bros., Seaforth.	1 " ...	40	Gorman & Eckert, London, Ont.
" 20	" ..	30916	M. H. Killoran, Stratford..	¾ "	28	Coffee & Spice Co., London, Ont.
" 20	" ..	30922	McCulla & Haugh, Stratford.	¾ "	30	Not known ....
" 27	" ..	30927	James Cutt, Blyth....	¾ "	25	Canada Coffee & Spice Co., London, Ont.
" 27	" ..	30931	H. A. Malcolm, Wingham..	¾ "	30	C. W. Griffin..... .....
June 30	" ..	30935	Michael Durkin, Mitchell, Ont.	¾ "	30	Canada Spice & Grocery Co., London, Ont.
						DISTRICT OF WINDSOR—
May 15	White Pepper..	34541	F. J. Wood, Petrolia.....	½ lb....	20	Gorman, Eckert & Co., London.
" 19	" ..	34551	E. O. Flaherty, Stratford. .	½ "	20	McLaren Co., Hamilton....

SESSIONAL PAPER No. 14

TABLE I—WHITE PEPPER.

Inspector's Report.	Results of Analysis.					Remarks and Opinion of the Chief Analyst.
	Water soluble.	Ash, per cent.			Microscopical Examination.	
		Total.	Soluble in acid (Hydrochloric.)	Insoluble in acid (Hydrochloric Sand)		
H. J. DAGER, INSPECTOR.						
	p.c.	p.c.	p.c.	p c.		
Sample taken from tin on shelf of shop.		2 00			Pepper tissues only	Genuine.
Sample taken from tin chest on shelf.		1 90			"	"
Sample taken from stock tin on shelf.		1 88			"	"
Sample taken from drawer on ledge of shop.		1 48			"	"
Sample taken from stock tin. Vendor said he had it a long time.		1·46			"	"
Sample taken from stock tin on shelf.		1 84	1 52	0 32	"	"
Sample from stock tin on shelf Vendor says packages are marked pure when received.		1 46	1 38	0 08	Contains wheat flour	Adulterated.
Sample from stock tin on shelf Vendor bought it for pure.		1·28			Pepper tissues only	Genuine.
Sample from tin branded Todhunter's White Pepper.		0 98	0·88	0·10	"	"
Jardine Brand strictly pure spices white peppers. Pure Gold Mfg. Co., Ltd.		0·96	0 78	0·18	"	"
T. KIDD, INSPECTOR.						
		2·50			Pepper tissues only	Genuine.
		1 20			"	"
		2 26			"	"
		1·16			"	"
		0 94			"	"
		1·58			Contains a trace of wheat flour.	Doubtful.
Vendor bought this in the stock he bought from C. W. Griffin.		1 14			Pepper tissues only	Genuine.
		1 14			"	"
J. TALBOT, INSPECTOR.						
Not labelled		0·92			Pepper tissues only	Genuine.
After purchase was made Mr. Flaherty said that this was not pure but acknowledged if a customer asked for White Pepper he gave it to them as such.		1·56			"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF WINDSOR—
1908.						
June 9	White Pepper..	34558	G. N. Willets, Brantford. . .	½ lb . . .	15	Hamilton Coffee & Spice Co.
" 9	" ..	34559	Bon Marche, Brantford.....	½ " ..	20	F. F. Dally Co., Hamilton..
" 10	" ..	34564	Fred. Millman, Woodstock..	½ " ..	25	Todhunter & Mitchell, Toronto.
" 10	" ..	34567	A. M. Smith & Co., Woodstock.	½ " ..	20	Gorman & Eckert, London, Ont.
" 10	" ..	34571	H. W. Healy, Ingersoll.....	½ " ..	20	T. B. Escott & Co., London, Ont.
" 25	" ..	34574	F. J. Wagner, Aylmer.....	½ " ..	15	McLaren Co., Hamilton... .
						DISTRICT OF MANITOBA—
May 19	White Pepper..	33128	Wright & Co., Minnedosa...	¾ lb....	30	Codville & Co., Winnipeg....
" 19	" ..	33129	P. J. McDermott, Minnedosa	½ " ..	20	Campbell Bros., Wilson, Winnipeg.
" 21	" .	33130	W. T. Francis, Norwood Grove, P.O., St. Boniface.	½ " ..	20	The Dyson Co., Winnipeg...
" 21	" ..	33131	H. Sylvester, Norwood Grove, P.O., St. Boniface.	½ " .	20	The Jobin Marrin Co., Winnipeg.
" 22	" ..	33132	R. W. O. Rolph, Logan Ave., Winnipeg.	½ " ..	20	The White Star Co., Winnipeg.
" 22	" ..	33133	The Sweedish Importing Grocery Co., Ltd., Winnipeg..	½ " ..	20	Not given.....
" 27	" ..	33134	C. Finkleman, West Selkirk.	½ " ..	15	" ... .
" 27	" ..	33135	Chas. Horwitz, West Selkirk.	½ " ..	20	The Codville Co., Ltd., Winnipeg.
" 27	" ..	33136	R. Bullock	½ " ..	20	" " ....
" 28	" ..	33137	I. Genser, Stonewall.....	½ " ..	20	Campbell Bros., Wilson, Winnipeg.
						DISTRICT OF CALGARY—
June 29	White Pepper..	28929	Star Trading Co., Wetaskiwin.	3 tins...	30	White Star Mfg. Co., Winnipeg.
" 22	" ..	28935	Georgeson & Co., Ltd., Calgary.	3 pkgs..	30	Georgeson Co., Ltd., Calgary.
" 22	" ..	28936	L. T. Mewbwin & Co., Calgary.	3 " ..	25	Red Feather Co., Hamilton..
" 22	" ..	28937	G. F. & J. Galt, Ltd., Calgary.	3 " ..	25	Blue Ribbon Mfg. Co., Winnipeg.
" 22	" ..	28938	Donnelly, Watson & Brown, Calgary.	3 " ..	30	Pure Gold Mfg. Co., Ltd., Toronto.
" 22	" ..	28939	Campbell, Wilson & Horne, Ltd., Calgary.	3 " ..	25	Campbell Bros. & Wilson, Winnipeg.
" 26	" ..	28940	L. B. Cackrane, Medicine Hat.	3 " ..	30	Codville & Co., Winnipeg...
" 26	" ..	28941	Stewart & Tweed, Medicine Hat.	3 " .	30	Hamilton Coffee & Spice Co., Hamilton.
" 27	" ..	28942	Hudsons Bay Co., Lethbridge	3 " ..	30	Unknown..... .. ..
" 27	" ..	28943	Bently Co., Ltd., Lethbridge	3 " ..	30	Imperial Spice Co., Hamilton.

SESSIONAL PAPER No. 14

TABLE I—WHITE PEPPER.

Inspector's Report	Results of Analysis.					Remarks and Opinion of the Chief Analyst.
	Ash, per cent.					
	Water soluble.	Total.	Soluble in acid, (Hydrochloric).	Insoluble in acid, (Hydrochloric), Sand	Microscopical Examination	
J. TALBOT, INSPECTOR.—*Concluded.*						
	p. c.	p. c.	p. c.	p. c.		
Not labelled		1·68			Contains wheat flour and cayenne.	Adulterated.
"		0·84			Pepper tissues only	Genuine.
"		0·70			" "	"
"		2·28			" "	"
"		2·18			" "	"
"		1·92			" "	"
A. C. LARIVIERE, INSPECTOR.						
Gold Standard Pure Ground White Pepper.		1·24	1·00	0·24	Pepper tissues only	Genuine.
		1·44	1·34	0·10	Contains wheat flour	Adulterated
		1·54	1·44	0·10	" "	"
		1·22	1·10	0·10	A little wheat flour	Doubtful.
		1·22	1·08	0·14	Pepper tissues only	Genuine.
		2·42	2·18	0·24	" "	"
		1·50	1·26	0·24	Contains wheat flour	Adulterated.
		1·16	0·92	0·24	Pepper tissues only	Genuine.
		1·36	1·28	0·16	" "	"
		1·42	1·34	0·08	Contains wheat flour	Adulterated.
R. W. FLETCHER, INSPECTOR.						
		1·02			Pepper tissues only	Genuine.
		1·10			" "	"
		0·90			" "	"
		1·04			" "	"
		1·06			" "	"
		1·44			Contains wheat flour	Adulterated.
		0·94			Pepper tissues only	Genuine.
		0·80			" "	"
		0·94			" "	"
		2·10			" "	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF VANCOUVER—			
1908.						
May 13	White Pepper...	34275	W. Clark, Vancouver.	6 oz...	30	E. R. Durkee.....
" 13	" ..	34276	Labelle & Co., Vancouver...	12 " ...	30	Oriental Mills, Vancouver...
" 13	" ..	34277	J. Donald & Co., Vancouver.	12 " ...	25	W. H. Malkin & Co., Vancouver.
" 14	" ..	34278	C. E. Turner, Vancouver...	12 " ...	30	Braid & Co., Vancouver.....
" 14	" ..	34279	J. A. Dickie, Vancouver....	½ lb.. .	20	Hudsons Bay Co., Vancouver.
" 14	" .	34280	Woodward Dept. Stores, Vancouver.	3 tins...	30	Braid & Co., Vancouver.....
" 14	" ..	34281	The People's Grocery, Vancouver.	3 " ..	30	W. J. McMillan & Co., Vancouver.
" 14	" .	34282	Alex. Hogg, Fairview, Vancouver.	½ lb....	20	W. H. Malkin & Co., Vancouver.
" 14	" ..	34283	J. D. Millar, Mount Pleasant, Vancouver.	½ " ..	20	Simon Leiser, Victoria .....
" 14	" ..	34284	Dickie & Co., Mount Pleasant, Vancouver.	3 tins...	30	Kelly, Douglass & Co., Vancouver.
			DISTRICT OF VICTORIA -			
June 17	White Pepper...	34893	Windsor Grocery Co., Victoria, B.C.	½ lb....	25	Pioneer Coffee & Spice Mills, Victoria, B.C.
" 17	" ..	34895	Saunders Grocery Co., Ltd., Victoria, B.C.	3 tins...	20	Victoria Coffee & Spice Mills, Victoria, B.C.
" 19	" ..	34901	W. Speed, Victoria, B.C....	½ lb...	20	Todhunter, Mitchell & Co., Toronto, Ont.
" 19	" ..	34903	" "	3 tins...	30	E. R. Durkee, New York ...
" 19	" ..	34904	Windsor Grocery Co., Victoria, B.C.	3 " ..	30	Pioneer Coffee & Spice Mills, Victoria, B.C.
" 22	" ..	34906	Acton Bros , Victoria, B.C..	½ lb....	20	" " ..
" 22	" ..	34908	Dixi H. Ross & Co., Victoria, B.C.	½ " ..	20	J. A. Folger & Co., San Francisco, Cal.
" 22	" ..	34910	W. O. Wallace, Victoria, B.C.	¼ " ..	35	Empress Mfg. Co., Vancouver, B.C.
" 22	" ..	34915	" " ..	3 tins...	45	A. Shilling & Co., San Francisco, Cal.
" 23	" ..	34916	Victoria Rochdale Co-operative Assoc., Victoria, B.C.	3 pkgs..	30	The Hamilton Coffee & Spice Co., Ltd., Hamilton, Ont.

SESSIONAL PAPER No. 14

TABLE I—WHITE PEPPER.

Inspector's Report.	Results of Analysis.					Remarks and Opinion of the Chief Analyst.
	Water soluble.	Ash, per cent.			Microscopical Examination	
		Total.	Soluble in acid, (Hydrochloric).	Insoluble in acid, (Hydrochloric) Sand		
J. F. POWER, INSPECTOR.						
	p. c.	p. c.	p. c.	p. c.		
"Gauntlet Brand. Guaranteed perfectly pure. Guaranteed under the Food & Drug Act. Serial No. 5061.	....	1·02	..	.	Pepper tissues only.....	Genuine.
Guaranteed to be of the finest quality, full strength and full weight.	.....	1·04	.....	....	" " . .	"
Red Cross brand. Guaranteed absolutely pure.	...	0·96	0·84	0·12	"	"
Guaranteed absolutely pure....	.....	1·30	1·20	0·10	" " ..	"
....	.....	0·98	.....	.....	" " ...	"
Specially put up for Woodwards. Guaranteed first quality.	.....	0·96	0·82	0·14	" " .	"
Monarch brand. Pure	.....	1·20	0·94	0·26	" " ..	"
. ...	.....	1·10	0·88	0·22	" " ...	"
....	.....	1·06	0·98	0·08	" "	"
Columbia brand. Guaranteed finest quality, full strength and full weight.	.....	1·26	1·02	0·24	" " .	"
D. O. SULLIVAN, INSPECTOR.						
. ...		1·00	.....	...	Pepper tissues only.....	Genuine.
Victoria brand Pure White Pepper.	...	1·14	.....	.....	Contains wheat flour and cayenne.	Adulterated.
Put up in 25 lb. wooden pails. Guaranteed pure.	....	0·86	.....	.....	Pepper tissues only.....	Genuine.
Marked Durkee's Gauntlet Brand.	.....	0·80	.....	.... .	" "	"
Marked "Empire Brand." Extra quality.	...	0·90	.....	.....	" "	"
. . ..		0·90	.....	.....	" "	"
Put up in 25 lb. wooden pails. Marked pure.	.....	2·06	.....	.....	" "	"
" " . ..	...	0·98	.....	.....	" "	"
Marked Shillings Best White Pepper.	. ...	1·08	.....	.....	" "	"
Marked Thistle Pure White Pepper.	.....	2·04	.. ..	.....	" "	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF NOVA SCOTIA—			
1908.						
May 12	Black Pepper...	33650	John P. Mott & Co., Halifax, N.S.	6 oz...	....	Vendors.....
" 12	" ...	33651	Wentzell's, Limited, Halifax, N.S.	6 " ...	15	John P. Mott & Co., Halifax, N.S.
" 13	" ...	33657	Craig & Hodgson, Halifax, N.S.	8 " ...	15	Canadian Drug Co., St. John, N.B.
" 13	" ...	33658	E. B. Tracey, Halifax, N.S..	12 " ...	21	John P. Mott & Co., Halifax, N.S.
" 13	" ...	33659	E. Donahoe & Son, Halifax, N.S.	12 " ...	21	W. H. Schwartz & Son, Halifax, N.S.
" 13	" ...	33660	Nat. Drug & Chem. Co., Halifax.	12 " ...	15	Vendors. .. ..
" 14	" ...	33661	Larder, Hubley & Co., Halifax, N.S.	8 " ...	20	Todhunter, Mitchell & Co., Toronto, Ont.
" 14	" ...	33662	I. Moser, Halifax, N.S.....	12 " ...	24	W. H. Schwartz & Sons, Halifax, N.S.
" 14	" ...	33663	Walter Taylor, Halifax, N.S.	12 " ...	25	Robt. Creig & Co., Ltd., Toronto, Ont.
" 21	" ...	33664	E. E. O'Brien & Co., Truro, N.S.	12 " ...	24	W. H. Schwartz & Sons, Halifax, N.S.
			DISTRICT OF PRINCE EDWARD ISLAND—			
May 14	Black Pepper...	31271	Geo. Rockham, Charlottetown.	½ lb....	15	Carvell Bros., Charlottetown.
" 14	" ...	31272	M. Duffy, Charlottetown...	½ "	20	John P. Mott & Co., Halifax.
" 14	" ...	31273	W. W. Walker, Charlottetown.	½ "	16	W. H. Schwartz & Co., Halifax.
" 19	" ...	31274	A. J. McDonald, Souris....	3 pkgs..	27	Carvell Bros., Charlottetown.
" 19	" ...	31275	W. D. Currie, Souris.....	3 " ..	24	J. P. Mott & Co., Halifax...
" 19	" ...	31276	Sterns Bros., Souris.....	3 " ..	24	Nat. Drug & Chemical Co., Halifax.
" 21	" ..	31277	A. McLean, Georgetown....	3 " ..	24	The Greig Co., Ltd., Toronto.
" 26	" ...	31278	McMurdo Bros., Summerside	½ lb. ...	13	Hudon, Hebert & Co., Ltd., Montreal.
" 27	" ...	31279	McFadyen & McLellan, Summerside.	½ " ...	20	Can. Drug Co., Halifax.....
" 27	" ...	31280	T. A. Hynes, Kensington...	3 pkgs..	27	G. E. Barbour, St. John ...

SESSIONAL PAPER No. 14

TABLE II—BLACK PEPPER.

Inspector's Report.	Results of Analysis.					Remarks and Opinion of the Chief Analyst.
	Water soluble.	Ash, per cent.			Microscopical Examination	
		Total.	Soluble in acid, (Hydrochloric).	Insoluble in acid, (Hydrochloric), Sand		
R. J. WAUGH, INSPECTOR.						
	p. c.	p. c.	p. c.	p. c.		
Guaranteed pure	...	4·48	...	...	Pepper tissues only	Genuine.
Labelled, Pure Ground Pepper.	....	4 60	...	...	"	"
Sold as best Black Pepper; taken from stock.	..	4 42	...	...	"	"
Labelled, Strictly Pure	.....	4·46	...	...	"	"
Peerless Brand. Labelled, Strictly Pure.	...	5·18	...	...	"	"
Sovereign Brand. Labelled, Guaranteed Pure	.....	5·00	...	...	"	"
Taken from bulk; sold as pure.	.....	3·40	...	...	"	"
Peerless Brand; sold as pure	...	4 86	...	...	"	"
Labelled, Phœnix Black Pepper, with the word 'Mixture' in small letters over the word pepper. Forwarded in original packages.	..	3 74	...	...	Wheat and maize starch	Adulterated.
Peerless Brand. Labelled Strictly Pure.	.....	4 48	...	...	Pepper tissues only	Genuine.
T. MOORE, INSPECTOR.						
....	.....	4 58	...	....	Pepper tissues only	Genuine.
. ...	....	5 06	..	...	"	"
	....	4 68	....	..	"	"
Pepper unadulterated; perfection.	.....	4 38	....		"	"
Ground Pepper, guaranteed strictly pure.	...	4 26	....	....	"	"
Pure as Gold; unadulterated	.....	5 60	...		"	"
Phœnix Spices,. Extra choice mixture Black Pepper.	.	4 02	....	....	Maize and wheat starch	Adulterated.
.....	.....	5 32	...	..	Pepper tissues only	Genuine.
.....	.....	4 30	..	....	"	"
Acorn Brand. Strictly pure pepper ground from selected whole spice free from filler or shells.	....	4 78	..	...	"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF NEW BRUNSWICK—
1908.						
May 13	Black Pepper...	29702	G. E. Barbour & Co., Ltd., 11-12 North Wharf, St. John, N.B.	3 cart'ns	18	G. E. Barbour & Co., Ltd., 11-12 North Wharf, St. John, N.B.
" 20	" ..	29703	N. W. Eveleigh & Co., Main St., Sussex, Kings Co., N.B.	½ lb....	15	C. H. Cochrane & Co., Ottawa, Ont.
" 22	" ..	29704	T. & F. Dobson, Grocers, Main St., Moncton, N.B.	½ " ..	15	Not known..... ....
" 23	" ..	29705	Baird & Peters, Public Wharf, Newcastle, N.B.	3 cart'ns	25	Jno. P. Mott & Co., Halifax, N.S.
" 27	" ..	29706	Wm. Currie & Co., Ltd., Water St., Campbelltown, N.B.	3 " ..	30	Bowman & Cole, St. John, N.B.
June 4	" ..	29707	P. F. McKenna, King St., St. Stephen, N.B.	½ lb....	15	" " ....
" 8	" ..	29708	John Graham Estate, Queen St., Woodstock, N.B.	½ " ..	15	Geo. E. Barbour & Co., Ltd., North Wharf, St. John, N.B.
" 8	" ..	29709	W. S. Skillen, Main St., Woodstock, N.B.	½ " ..	15	" " ....
10	" ..	29710	F. D. Sadler, Perth, Victoria Co., N.B.	3 cart'ns	24	The Robt., Greig Co., Ltd., Toronto.
10	" ..	29711	Geo. T. Baird Co., Ltd., Perth, Victoria Co., N.B.	½ " ..	24	Dearborn & Co., St. John, N.B.
						DISTRICT OF QUEBEC—
May 12	Black Pepper...	26420	Joseph Boivin, Portneuf....	½ " ..	13	N. Rioux & Cie, Quebec.....
" 12	" ..	26424	Marie Richard, Portneuf ..	½ " ..	12	Whitlead & Turner, Quebec.
" 13	" ..	26425	Jos. Falardeau, Cap Santé..	½ " ..	10	N. Rioux & Cie, Quebec.....
" 13	" ..	26427	Elzéar Gérard, Cap Santé ..	½ " ..	13	N. Turcotte & Cie, Quebec ..
" 13	" ..	26439	F. X. Paquet, Cap Santé....	½ " ..	10	Leclerc & Letellier, Quebec..
" 13	" ..	26434	A. Bernard, Cap Santé.....	½ " ..	10	A. A. J. Gingras, Quebec. ..
" 14	" ..	26436	Joseph O. Lefévre, Portneuf	½ " ..	11	Quebec Preserving Co., Quebec.
" 14	" ..	26437	Ludger Belleau, Portneuf...	½ " ..	10	" " ....
" 14	" ..	26438	Napoleon Pleau, St. Basile..	½ " ..	14	N. Turcotte & Co., Quebec ..
" 14	" ..	26440	Geo. Montreuil, St. Basile..	½ " ..	10	T. B. E. Latellier, Quebec..
" 14	" ..	26441	Chas. Latulippe, St. Basile, Station.	½ " ..	13	Lavoie & Latulippe, Quebec.
" 14	" ..	26444	Edmond Germain, St. Basile	½ " ..	20	N. Turcotte & Co., Quebec..
" 14	" ..	26447	Adjutor Thibadeau, St. Basile	½ " ..	13	Boivin & Grenier, Quebec. ..

SESSIONAL PAPER No. 14

TABLE II.—BLACK PEPPER.

Inspector's Report.	Results of Analysis.					Remarks and Opinion of the Chief Analyst.
	Water soluble.	Ash, per cent. Total.	Soluble in acid (Hydrochloric).	Insoluble in acid (Hydrochloric) Sand.	Microscopical Examination.	
J. C. FERGUSON, INSPECTOR.						
	p. c.	p. c.	p. c.	p. c.		
Acorn brand. Strictly pure Pepper. Guaranteed. Quality counts.		4 32			Pepper tissues only	Genuine.
		4 78			Trace of wheat flour	Doubtful.
Sample taken in bulk from spice can on shelf.		4 91			Pepper tissues only	Genuine.
Reindeer brand Pepper. ¼ lb., full weight.		4 60			"	"
Thistle brand Black Pepper. Bowman & Cole Spices. Guaranteed to be pure, ¼ lb., full weight.		4 36			Wheat flour and cayenne	Adulterated.
In bulk from spice can in store		4 60			Wheat flour	"
"Acorn Brand." From ½ barrel.		4 30			Pepper tissues only	Genuine.
Acorn Brand. From spice can on shelf.		4 90			"	"
Phœnix Extra. Pure Spices Black Pepper.		3 96			Wheat flour	Adulterated.
Perfection Brand Ground Pepper. Absolutely pure. The goods sold under this brand are absolutely pure.		6 28	4 28	2 00	Pepper tissues only	Genuine.
E. BELAND, INSPECTOR.						
		5 38			Pepper tissues only	Genuine.
		4 14			"	" Very coarsely ground.
		5 62			"	Genuine.
		5 16			"	"
		4 40			"	"
		4 78			"	"
		5 76			Wheat flour	Adulterated.
		11 60	4 76	6 81	Pepper tissues only	Too high ash. Adulterated.
Only one sample		5 36			"	Genuine.
		4 82			"	"
		6 14	3 46	2 68	Wheat and maize starch	Adulterated.
	0 56	19 90	4 44	14 90	Wheat flour	"
	0 88	9 32	3 74	4 70	"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF ST. HYACINTHE—			
1908.						
May 11	Black Pepper...	129	P. C. Lemoine, Sorel.....	1 lb.....	20	J. B. Boudrais, Montreal ...
" 12	" ...	130	J. E. R. Deschenaux, Pierreville.	1 " ...	25	E. Alley, Pierreville .....
" 13	" ...	132	O. Hebert, Iberville.....	1 "	22	Lacaille, Gendreau & Cie., Montreal.
" 13	" ...	133	F. J. Plante, St. Jean.....	1 "	24	Not known. .....
" 14	" ...	134	J. Hubert & fils, Granby....	1 "	20	Hudon, Hebert & Cie., Montreal.
" 14	" ...	135	L. Elms, Farnham.	3 pkgs..	24	S. H. & A. S. Ewing, Montreal.
" 18	" ...	136	Ginn & Elliot, Richmond...	1 lb.....	25	Mathewson Sons, Montreal..
" 18	" ...	137	Lambert & Lambert, Brompton ville.	1 "	30	S. H. Ewing & Sons, Montreal.
" 19	" ...	138	E. J. Planche & Co., Cookshire.	3 pkgs..	24	Mathewson Sons, Montreal..
" 19	" ...	139	Denault Grain & Provision Co., Sherbrooke.	1 lb.....	10	Lyon Silverman, Montreal...
			DISTRICT OF MONTREAL—			
May 11	Black Pepper...	32937	J. A. Simard & Cie, 305 St. Paul St., Montreal.	½ lb.....	10	Vendors..... .....
" 11	" ...	32938	J. J. Duffy & Co., 375 St. Paul St., Montreal.	½ "	10	" ....
" 11	" ...	32939	S. H. Ewing & Sons, 98 King St., Montreal.	½ "	10	" ....
" 11	" ...	32940	Heron Leblanc, Ltd., 573 St. Paul St., Montreal.	½ " . ..	10	" ....
" 11	" ...	32941	J. Labranche, 535 Notre Dame East, Montreal.	½ "	10	Vendor.....
" 12	" ...	32942	J. V. Boudrais, 222 Notre Dame East, Montreal.	½ "	8	" .....
" 12	" ...	32943	Theodore Lefebvre & Co., Gosford St., Montreal.	½ "	8	Vendors..... .....
" 18	" ...	32944	M. Charette, St. Joseph St., Lachine, P.Q.	½ "	10	Laporte, Martin & Cie., Montreal.
" 18	" ...	32945	J. M. Beaudoin, Notre Dame St., Lachine, P.Q.	½ "	18	" " ..
" 18	" ...	32946	George Stroud, 529 St. Catherine E., Montreal.	½ "	20	S. H. Ewing & Sons, Montreal.

TABLE II—BLACK PEPPER.

Inspector's Report.	Results of Analysis.					Remarks and Opinion of the Chief Analyst.
	Water Soluble.	Ash, per cent.			Microscopical Examination.	
		Total.	Soluble in acid (Hydrochloric).	Insoluble in acid (Hydrochloric), Sand.		
J. C. ROULEAU, INSPECTOR.						
	p.c.	p.c.	p.c.	p.c.		
Box marked, pure ground Black Pepper.		5·94	....	..	Pepper tissues only.....	Genuine.
....	1·00	7·40	2·84	3·56	Wheat flour and other foreign tissues.	Adulterated.
Box marked, Pure Black Pepper	....	5·31	....	....	Pepper tissues only.....	Genuine.
From drawer under shelf....	.....	4·44	..	..	" ...	"
From pail marked, Arrow. Pure ground Black Pepper.	0·72	8·12	3·06	4·31	Wheat and maize starch and other foreign tissues.	Adulterated.
Prince of Wales Brand Spices. Pure Black Pepper.	..	4·26	....	....	Pepper tissues only...	Genuine.
....	0·60	11·36	2·86	7·90	Wheat flour and foreign tissues.	Adulterated.
After telling vendor sample was for analysis, he said he sold it for compound. On examination I could not find the word compound. Vendor thought it was a compound, but he bought it for pure.	0·82	5·44	1·86	2·76	Wheat flour and cayenne.	"
Box marked Black Pepper 'M.' Put up for Matthewson's Sons, Montreal.	0·60	16·16	4·06	11·50	" "	"
Box marked, Pure Black Pepper	1·40	11·38	4·04	5·94	" "	"
J. J. COSTIGAN, INSPECTOR.						
....	...	5·46	..		Pepper tissues only.....	Genuine.
....	..	6·10	3·80	2·30	"	"
....	.....	4·42	.....	....	"	"
....	.....	4·60	....	..	Wheat starch.....	Doubtful.
Vendor is successor to E. Painchaud, coffee and spice manufacturer. Sample taken from stock bought from said E. Painchaud.	..	9·36	4·40	4·96	Maize and wheat starch and foreign tissues.	Adulterated.
....	.....	11·76	5·58	6·18	Pepper tissues only.....	Ash too high. Adulterated.
....	..	4·54	...	...	"	Genuine.
.....	0·80	13·14	3·84	8·50	Maize and wheat flour and apparently cayenne.	Adulterated.
... .	.....	14·50	5·10	9·40	Pepper tissues only.	Ash too high. Adulterated.
After purchase vendor said that sample should have been offered as compound.	.....	7·16	3·00	4·16	Wheat flour	Adulterated.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF OTTAWA—			
1908.						
May 14	Black Pepper...	34170	W. C. Scott, Cor. Nicholas and Laurier Ave., Ottawa, Ont.	½ lb....	20	Not known..... ....
" 15	" ...	34180	J. Bambrick, By Ward Market, Ottawa, Ont.	½ " ...	13	J. M. Low, Ltd., Toronto, Ont.
" 15	" ...	34181	F. W. Forde, 189 Rideau St., Ottawa, Ont.	½ " ...	15	C. H. Cochrane & Co., Ottawa.
" 15	" ...	34182	M. T. Pinkerton, Cor. Dalhousie and Rideau Sts., Ottawa, Ont.	½ "	15	" " ..
" 16	" ...	34183	J. G. Stewart, 273-275 Bank St., Ottawa, Ont.	½ " ...	20	" " ..
" 16	" ...	34184	Bryson, Graham & Co., 33 O'Connor St., Ottawa, Ont.	½ " ...	15	Not known..... ... .
" 16	" ...	34185	T. Lindsay, Ltd., Sussex St., Ottawa, Ont.	½ "	15	" .....
" 21	" ...	34186	A. Meehan & Son, Pembroke, Ont.	½ "	13	Gorman & Eckert, London..
" 26	" ...	34187	W. & J. Meikle, Morrisburg, Ont.	½ "	13	Not known..... ....
" 29	" ..	34188	The A. B. Scott Co., Smith's Falls, Ont.	½ " ..	15	Gorman, Eckert & Co., London.
			DISTRICT OF KINGSTON—			
May 12	Black Pepper...	35237	R. Elvies, Front St., Belleville, Ont.	½ lb....	12	John Sloan, Belleville.....
" 12	" ...	35238	H. E. Fairfield, Front St., Belleville, Ont.	½ " ...	13	" " .....
" 12	" ...	35239	J. Harker, Front St., Belleville, Ont.	½ " ...	13	Greig Co., Toronto.....
" 14	" ...	35240	John Curtis, Port Hope.....	½ "	14	Todhunter & Mitchell, Toronto.
" 14	" ...	35241	J. Dunfee, Port Hope.....	½ "	20	Pure Gold, Toronto. ..... .
" 14	" ...	35242	S. Fourt, Port Hope	½ "	15	The Red Feather Co. (W. H. Gillard), Hamilton.
" 15	" ...	35243	W. J. Roulty, Charlotte St., Peterboro'.	½ "	20	S. H. Ewing & Son, Montreal.
" 15	" ...	35244	J. Sutherland, George St., Peterboro'.	½ "	15	F. F. Dally Co., Hamilton...
" 12	" ...	35245	A. J. McCrodan, Front St., Belleville.	½ "	13	Todhunter & Mitchell, Toronto.
" 14	" ...	35246	Mason Co., Peterboro'.....	½ "	20	" " ..

SESSIONAL PAPER No. 14

TABLE II—BLACK PEPPER.

Inspector's Report.	Results of Analysis.					Remarks and Opinion of the Chief Analyst.
	Water soluble.	Ash, per cent. Total.	Soluble in acid (Hydrochloric).	Insoluble in acid (Hydrochloric) Sand	Microscopical Examination	
J. A. RICKEY, INSPECTOR.						
	p. c.	p. c.	p. c.	p. c.		
After purchase of sample a clerk said he did not think pepper was pure, as it was stock purchased from a former proprietor. Sold as Black Pepper.	...	3·81	3·36	0·48	Wheat flour.....	Adulterated.
Sold as Black Pepper from bulk	...	4·76	...	...	Pepper tissues only.	Genuine.
" " ..	.....	4·90			" "	"
" " ...	....	5·04			" "	"
Said it was the best that they could buy. Sold as Black Pepper from bulk.	.....	4·22	....		" " ...	"
Sold as Black Pepper ..	0·86	14·56	4·60	9·10	" ...	Ash too high. Adulterated.
" "	....	5·00	.	... ..	" "	Genuine.
Sold as pure Black Pepper .. Vendor said it was supposed to be Pure No. 2 Black Pepper.	...	4·24			" " ..	"
Sold as Black Pepper	...	4·86		.....	. "	"
" "	..	4·98	.	.	" "	"
J. HOGAN, INSPECTOR.						
....	. .	5·08		.	Pepper tissues only..	Genuine.
... .. .	.	4·90			" "	"
..... .		4·64	..		Wheat flour present	Adulterated.
. ...	.	5·00		...	Pepper tissues only..	Genuine.
. ...		4·62			" "	"
( ) .. ( )		4·64		..	" "	"
. ...		4·56			" " ..	"
....	..	3·80	.		" " ...	"
. ...		4·72		.	" " .	"
....		4·50			" " .	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF TORONTO—			
1908.						
May 11	Black Pepper. .	35069	P. & R. Laing, King St., Dundas.	½ lb	15	Hamilton Coffee & Spice Co., Ltd., Hamilton.
" 12	"	35070	Alderidge & Avery, Caledonia.	½ "	13	Balfour, Smye & Co., Hamilton.
" 13	"	35071	T. J. Galbraith & Son, Dunnville.	½ "	15	Hamilton Coffee & Spice Co., Ltd., Hamilton.
" 14	"	35072	L. Anguish, Cayuga.... ...	½ "	13	" " ..
" 19	"	35073	W. R. Krafft, Bridgeburg...	½ "	15	Gorman, Eckert & Co., Ltd., London.
21	"	35074	A. F. Hawke, Grimsby.....	½ "	15	F. F. Dally Co., Ltd., Hamilton.
" 21	"	35075	S. Nash, Stoney Creek.....	½ "	12	" " ..
" 23	"	35076	D. Le Barre, Oakville.....	½ "	13	Macpherson, Glassco & Co., Hamilton.
" 26	"	35077	A. Miller, 389 Church St., Toronto.	½ " ...	15	Dalton Bros., Toronto.....
" 26	"	35078	D. McEachern, 934 Bloor St., Toronto.	½ "	13	" " ..
			DISTRICT OF LONDON—			
May 12	Black Pepper...	30497	O. C. Whitely, Goderich....	.....		A. M. Smith & Co., London.
" 14	"	30901	J. D. Smith, St. Mary's	1 lb	30	Not known..... ....
" 15	"	30906	Mr. Sandy, Seaforth.....	1 " ...	25	Kruse Bros.....
" 1	"	30915	T. J. Molyneat, Dublin.....	1 "	25	Not known .....
" 20	"	30918	J. A. Monteath & Co., Stratford.	¾ "	23	J. A. Monteath (Canada Spice & Grocery Co.), Stratford.
" 27	"	30926	Popplestone & Gardner, Blythe.	¾ "	25	Gorman & Eckert, London..
" 27	"	30929	J. J. Kerr, Wingham..	1 "	30	Masurett & Co., London....
June 30	"	30934	William Stoneman, Mitchell, Ont.	1 " . . .	20	Pure Gold Mfg. Co., Toronto.
" 30	"	30936	Harrison & Wietsie, Clinton.	1 " .. .	25	Gorman & Eckert, London ..
" 30	" .. .	30937	Geo. McLennon, Clinton...	1 "	22	W. H. Gillard & Co., Hamilton.

SESSIONAL PAPER No. 14

TABLE II—BLACK PEPPER.

Inspector's Report.	Results of Analysis.					Remarks and Opinions of the Chief Analyst.
	Water soluble.	Ash, per cent.			Microscopical Examination	
		Total.	Soluble in acid. (Hydrochloric).	Insoluble in acid. (Hydrochloric) Sand		
H. J. DAGER, INSPECTOR.						
	p.c.	p.c.	p.c.	p.c.		
Sample from stock tin on shelf	....	4·12	.....	...	Pepper tissues only	Genuine.
Sample from stock tin on shelf. Vendor said it was pure pepper.	..	4·90	..	.....	"	"
Sample from stock tin on shelf	...	4·58	..	..	"	"
" " ..	...	6·68	4·60	2·08	"	"
Sample from 25-lb. pail labelled, 25 lbs. Singapore Forest City Pure Spices. Gorman, Eckert & Co., Ltd. Pepper.	..	5·08	..	..	"	"
Sample taken from stock in shop.	..	5·62	..	..	Trace of wheat flour	Doubtful.
Sample from stock tin on shelf	....	4·40	..	..	Pepper tissues only	Genuine.
Sample from stock tin on shelf. Vendor bought it for pure pepper.	.....	4·60	..	..	Wheat flour	Adulterated.
Sample from tin branded, Dalton's Extra Select Spices. Black Pepper.	..	4·62	..	..	Pepper tissues only	Genuine.
Sample from stock tin. Vendor says he buys it in 5 lbs. at a time.	..	5·04	....	..	"	"
T. KIDD, INSPECTOR.						
... .	....	4·58	.....	.....	Pepper tissues only.	Genuine.
.....	.....	4·68	..	..	Wheat flour.....	Adulterated.
.....	...	4·34	..	...	"	Doubtful.
.....	....	3·78	..	..	Maize and wheat starch and other foreign tissue.	Adulterated.
.....	...	6·10	3·64	2·50	Pepper tissues only. ...	Genuine.
.....		5·72	..	.....	Trace of wheat flour....	Doubtful.
.....	.....	4·30	.....	..	" "	Adulterated
.....	.....	5·26	..	..	Pepper tissues only.....	Genuine.
.....	.....	5·04	...	..	"	"
... .	.....	4·90	....	..	"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF WINDSOR—
1908.						
May 15	Black Pepper...	34539	C. R. Polley, Petrolia.....	½ lb....	15	T. Kenny Co., Sarnia .. ....
" 15	" ..	34540	F. J. Wood, Petrolia..	½ " ..	20	Pure Gold Mfg. Co., Toronto.
" 19	" ..	34553	W. G. Brown, Stratford	½ " ..	20	Canada Spice Co., London...
June 9	" ..	34557	G. Norman Willets, Brantford.	½ " ..	20	Hamilton Coffee & Spice Co..
" 10	" ..	34562	Jno. Scott & Co., Woodstock	½ " ..	13	Gorman & Eckert, London..
" 10	" ..	34565	Fury and Thompson	½ " ..	25	" " ....
" 10	" ..	34566	F. C. Tate, Woodstock	½ " ..	15	" " ....
" 10	" ..	34570	G. C. Minhennick, Ingersoll.	½ " ..	15	Lucas, Steele & Bristol, Hamilton.
" 10	" ..	34572	Robert Stewart, " ..	½ " ..	15	" " ....
						DISTRICT OF MANITOBA—
May 19	Black Pepper...	33138	Wright & Co., Minnedosa...	½ lb....	30	Codville, Georgeson Co., Ltd., Winnipeg.
" 19	" ..	33139	P.J. McDermott, Minnedosa	½ " ..	15	Not given..... . ...
" 21	" .	33140	W. T. Francis, Norwood Grove P.O., St. Boniface.	½ " ..	15	The Dyson Co., Winnipeg...
" 21	" ..	33141	H. Sylvester, Norwood Grove. P.O., St. Boniface.	½ " ..	20	The Jobin-Marrin Co., Ltd., Winnipeg.
" 22	" ..	33142	McArthur Grocery Co., Logan Ave., Winnipeg.	½ " ..	20	The Codville Georgeson Co., Ltd., Winnipeg.
" 22	" ..	33143	The Swedish Importing & Grocery Co., Ltd., Winnipeg.	½ " ..	20	Not given..... ... .
" 27	" ..	33144	C. Finkleman, West Selkirk.	3 pkts..	25	The Jobin-Marrin Co., Ltd., Winnipeg.
" 27	" ..	33145	W. Epstein, West Selkirk...	½ lb....	20	" " ....
" 27	" ..	33146	R. Bullock, West Selkirk....	½ " ..	20	The Codville Co., Ltd.....
" 28	" ..	33147	I. Genser, Stonewall..... ..	½ " ..	15	Campbell Bros., Wilson, Winnipeg.
						DISTRICT OF CALGARY—
June 22	Black Pepper ..	28945	Georgeson & Co., Ltd., Calgary.	3 pkgs..	30	Georgeson & Co., Ltd., Calgary.
" 22	" ..	28946	L. T. Mewburn & Co., Calgary.	3 " ..	20	Red Feather Co., Hamilton..
" 22	" ..	28947	G. F. & J. Galt, Ltd., Calgary	3 " ..	20	Blue Ribbon Mfg. Co., Winnipeg.
" 22	" ..	28948	Dennelly, Watson & Brown, Calgary.	3 " ..	25	Pure Gold Mfg. Co., Toronto.
" 22	" ..	28949	Campbell, Wilson & Horne, Calgary.	3 " ..	20	Campbell Bros. & Wilson, Winnipeg.
" 26	" ..	28950	L. B. Cockran, Medicine Hat.	3 " ..	30	Codville & Co , Ltd., Winnipeg.

SESSIONAL PAPER No. 14

TABLE II.—BLACK PEPPER.

Inspector's Report.	Results of Analysis.					Remarks and Opinion of the Chief Analyst.
	Water soluble.	Ash, per cent.			Microscopical Examination	
		Total.	Soluble in acid.(Hydrochloric).	Insoluble in acid.(Hydrochloric).Sand		
J. A. TALBOT, INSPECTOR.						
	p. c.	p. c.	p. c.	p. c.		
No. lable. No marks		4 38			Some wheat flour	Doubtful.
Analyst's Certificate on tub. Marked ash 4 54 p.c. Pepper tissue only. J. C. Jamieson		4 50			Pepper tissues only.	Genuine.
Delivered in pail. Could not find pail with label on.		6 04	4 74	1·30	" "	"
Not labelled.		4 62			" "	"
"		5 60			" "	"
"		5·30			" "	"
"		5 54			" "	"
"		5 50			" "	"
"		5·92			" "	"
A. C. LARIVIERE, INSPECTOR.						
Gold Standard. Pure ground.		6 34	4 44	1 90	Pepper tissues only.	Genuine.
		4 06			Wheat flour.	Adulterated.
		3 44			"	"
		4 52			"	"
		6·36	4 32	2 04	Pepper tissues only.	Genuine.
		4 86			" "	"
Ground specially for family use Extra quality Black Pepper Choice ground.		3·96			Wheat flour and foreign tissues.	Adulterated.
		4·14			Pepper tissues only.	Genuine.
Sold as Compound		5·30			" "	"
	1 14	6·90	2·68	3 08	" "	"
R. W. FLETCHER, INSPECTOR.						
		5·72			Pepper tissues only.	Genuine.
		5 80			" "	"
		4·56			" "	"
		4 10			" "	"
		4 08			Contains wheat flour and perhaps cayenne.	Adulterated.
		5·30			Pepper tissues only.	Genuine.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF CALGARY—
1908.						
June 26	Black Pepper...	28951	Stewart & Tweed, Medicine Hat.	3 pkgs.	30	Hamilton Coffee & Spice Co., Ltd., Hamilton.
" 27	" ...	28952	Hudson Bay Co., Lethbridge	3 " .	30	Gorman, Eckert & Co., London, Ont.
" 27	" ...	28953	Bently Co., Lethbridge.....	3 " .	30	Imperial Spice Co., Hamilton.
" 27	" ...	28954	Rodell Bros. & Lake Co., Ltd., Wetaskiwin.	3 " .	30	Dyson & Co., Winnipeg.....
						DISTRICT OF VANCOUVER—
May 13	Black Pepper...	34265	W. Clark, Vancouver.....	6 oz...	30	E. R. Durkee & Co.....
" 13	" ...	34266	Labelle & Co., Vancouver...	12 " ...	30	Oriental Mills, Vancouver...
" 13	" ...	34267	Tullidge's Cash Grocery, Vancouver.	½ lb...	15	Empress Mfg. Co., Vancouver.
" 14	" ...	34268	C. E. Turner, Vancouver...	12 oz...	30	Braid & Co., Voncouver.....
" 14	" ...	24269	J. A. Dickie, Vancouver....	½ " ...	20	Hudson Bay Co., Vancouver.
" 14	" ...	34270	Woodward Dept. Stores, Vancouver.	3 tins..	30	Braid & Co., Vancouver.....
" 14	" ...	34271	The People's Grocery, Vancouver.	3 " .	30	W. J. McMillan, Vancouver.
" 14	" ...	34272	A. Hogg, Fairview, Vancouver.	½ " .	20	W. A. Malkin, Vancouver...
" 14	" ...	24273	J. D. Miller, Mount Pleasant, Vaacouver.	½ " .	20	S. Leiser, Victoria.....
" 14	" ...	34274	Dickie & Co., Mount Pleasant, Vancouver.	3 " .	30	Kelly, Douglas & Co., Vancouver.
						DISTRICT OF VICTORIA—
June 17	Black Pepper...	34892	Windsor Grocery Co., Victoria, B.C.	½ lb...	25	Pioneer Coffee & Spice Mills, Victoria, B.C.
" 17	" ...	34896	Saunders Grocery Co., Ltd., Victoria, B.C.	3 tins..	20	Todhunter, Mitchell & Co., Toronto, Ont.
" 19	" ...	34900	W. Speed, Victoria, B.C....	½ lb...	20	" " .
" 19	" ...	34902	" "	3 tins..	30	E. R. Durkee, New York...
" 19	" ...	34905	Windsor Grocery Co., Victoria, B.C.	3 " .	30	Pioneer Coffee & Spice Mills, Victoria, B.C.
" 22	" ..	34907	Acton Bros., Victoria, B.C..	½ lb...	25	" " ..
" 22	" ...	34909	F. Carne, Victoria, B.C.....	3 tins..	30	" " ..
" 22	" ...	34911	Dixi H. Ross & Co., Victoria, B.C.	½ lb...	20	J. A. Folger & Co., San Francisco, Cal.
" 22	" ...	34913	W. O. Wallace, Victoria, B.C.	¾ " ...	40	Empress Mfg. Co., Vancouver, B.C.
" 22	" ...	34911	" " .	3 tins..	45	A. Shilling & Co., San Francisco, Cal.

SESSIONAL PAPER No. 14

TABLE II.—BLACK PEPPER.

Inspector's Report.	Results of Analysis.					Remarks and Opinion of the Chief Analyst.
	Ash, per cent.					
	Water Soluble.	Total.	Soluble in Acid (Hydrochloric).	Insoluble in Acid (Hydrochloric), Sand	Microscopical Examination.	
R. W. FLETCHER, INSPECTOR—*Concluded.*						
	p.c.	p.c.	p.c.			
....	.	4 26		. . .	Pepper tissues only.....	Genuine.
... .	.....	5·08	. .	. . .	"	"
....	....	5 54	.....	. . .	"	"
....		3 22	....	. . .	Contains wheat flour and foreign tissues.	Adulterated.
J. F. POWER, INSPECTOR.						
Gauntlet Brand. Warranted pure. Guaranteed under Food & Drugs Act. Serial No. 5961.	.....	4 52	....		Pepper tissues only	Genuine.
The spice in this can is guaranteed to be of the best quality. Full strength and full weight.	. . .	3 40	. .	. .	"	"
... .	. . .	4 44	. . .	. . .	"	"
Guaranteed absolutely pure..	.....	4 16	. . .	. . .	"	"
. .. .	....	3·28	. .	. .	" ...	"
Specially put up for Woodward. Guaranteed first quality.	.....	2 96	.	. . .	" ...	"
'Monarch Brand.' Pure spice.	. . .	4 44	. .	0·82	Wheat starch. . .	Adulterated.
....	.....	3·60	. .	. .	Pepper tissues only	Genuine.
....	.....	4 72	. .	.	Some wheat flour..	Doubtful.
Columbia Brand Pure Spice. The spice in this can is guaranteed to be the finest quality. Full strength and full weight.	.....	4 82	.	....	Pepper tissues only.....	Genuine.
D. O'SULLIVAN, INSPECTOR.						
....	....	4 98	.....	. . .	Pepper tissues only . . .	Genuine.
Todhunter's Pure Select Black Pepper.	....	4 68	....	. . .	" . . .	"
Put up in 25-lb. wooden pails, marked pure.	.....	6·22	4·98	1·24	" . . .	"
Marked Durkee's Gauntlet Brand.	. . .	5 30	....	. . .	"	"
Marked Empire Brand, Extra Quality.	.....	4 36	.....	.....	"	"
....	...	5·34	....	.....	" . . .	"
Marked Empire Brand, Extra Quality.	.....	4·32	.....	. .	"	"
Put up in 25-lb. wooden pails, marked pure.	.....	10·90	6·28	4 62	"	Ash too high. Adulterated.
" "		5 80	...	.....	"	Genuine.
Marked Schilling's Best Pepper.	....	4 61	.....	....	"	"

APPENDIX P.

BULLETIN No. 166—UNFERMENTED GRAPE JUICE.

OTTAWA, December 3, 1908.

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR,—I beg to hand you a report upon a collection of 70 samples of Unfermented Grape Juice, made during July and August of this year. Sixty-eight of these samples were obtained in the usual way, by our inspectors; the remaining two samples were subsequently sent in by Mr. Inspector Dager of Toronto *

Two samples from St. Hyacinthe were received in spoiled condition by the analyst, and the following five samples appear to be fermented wines, and not grape juice;—

No. 29738—St. John, N.B., by Mr. Inspector Ferguson, contains 10·67 per cent of proof spirit, is labelled Unfermented Grape Juice. Pelee Island Wine and Vineyards Co., Brantford and Pelee Island.

No. 32613—Montreal, by Mr. Inspector Costigan, contains 18·81 per cent of proof spirit, is labelled Unfermented Grape Juice, for Sacramental and Medical use. Expressed and bottled by Charles E. Scarff, Montreal.

No. 34604 St. Mary's, Ont., by Mr. Inspector Talbot, contains 24·69 per cent of proof spirit, is labelled Pure Canadian Grape Wine, and should not have been purchased or sold as unfermented Grape Juice. Manufacturer as given by vendor is the Niagara Falls Wine Co.

No. 35342—Calgary, by Mr. Inspector Fletcher, contains 31·32 per cent of proof spirit, is labelled Gely's Non-Alcoholic Wine. Augusta Gely, Taragona, Spain. "This wine is produced from the pure grape juice only, and warranted free from any alcohol."

This is evidently intended to imply that no alcohol, as such, has been added to the wine. It should not have been offered as unfermented.

No. 34313—Vancouver, by Mr. Inspector Power, contains 25·01 per cent, of proof spirit, is not labelled by the manufacturer. A written label, affixed by vendor (Woodward Dept. Stores, Vancouver), has the words "Unfermented Grape Juice." The article is a fermented wine. Vendor states it to be produced by the Ontario Grape and Wine Co., St. Catherines.*

		P. c. proof spirit.
No. 29738	Original	10·67
	Duplicate	11·05
No. 32613	Original	11·81
	Duplicate	2·34
No. 34604	Original	24·69
	Duplicate	25·34
No. 34313	Original	25·01
	Duplicate	24·69

* A specially collected sample, No. 32975, has been added since the above was written.

‡ The duplicate bottle of this sample contains only 2·34 per cent proof spirit.

* Owing to the fact that the inspector purchases three bottles of each sample, which bottles are supposed to contain the same identical grape juice, although they may actually represent the product as manufactured at different times, it has been considered proper to determine the alcohol in the duplicate sample, as well as in that intended for the analyst. The results of both determinations, in the instances where such have been made, appear in the following table:—

Of the remaining 63 samples, the following classification may be made, as regards their content of alcohol.

Alcohol.	Samples.
None or trace so small as to to be negligible	51
Below 1 per cent proof spirit	1
Between 1 and 2 per cent proof spirit	2
" 2 and 3 " "	1
" 3 and 4 " "	5
" 4 and 5 " "	2
Above 5 per cent proof spirit	1
Total	63

Eleven of these 63 samples contain salicylic acid as a preservative. It is interesting and important to note that, with two exceptions, those samples which contain salicylic acid contain very considerable percentages of alcohol; showing that the preservative has been added to the already fermenting juice, to stay further fermentation, and not to the fresh juice, in order to prevent fermentation from beginning. The following makes this plain :—

SAMPLES CONTAINING SALICYLIC ACID.

	Per cent proof spirit.
No. 33524 contains	4·12
No. 34102 "	0·00
No. 32611 "	2·09
No. 35274 "	3·03
No. 35141 "	3·30
No. 30978 "	3·03
No. 34588 "	3·30
No. 33192 "	4·89
No. 34312 "	5·74
No. A "	trace.
No. B "	0·70
No. 29738 "	10·67
No. 32613 "	18·81
No. 34313 "	25·01

Ten samples of grape juice, and one of wine, contain coal-tar dyes, as follows :—

No. 33524 Peurita, N. C. Polson.
No. 33194 " "
No. 34312 " "
No. 32611 Turner & Co.
No. 35274 "
No. 35141 "
No. 30978 "
No. 30952 Sterling, T. Lytle & Co.
No. A Toronto Wine Co.
No. B " "
No. 29738 Pelee Island Co.

It is worthy of note that most of the samples which contain dyes, contain a preservative also. Thus, of eleven samples (one being a wine) which are dyed, all but one (No. 30952) contain salicylic acid; while of fourteen samples which contain this preservative, all but four are dyed. (34402, 34588, 32613, 34313). Of these 32613 and 34313 must be regarded as fermented wines.

Under the heading *Extract*, are given two numbers; the first being the solids in solution derived from the specific gravity of the dealcoholized grape juice, as interpreted by Table II, published in Bulletin No. 59 of the Bureau of Chemistry, Washington. The second number, which is usually about 3 per cent less, is obtained by direct weighing of the wine solids, dried at 100°C. The table mentioned has evidently been prepared by drying the wine solids less completely than they are dried on asbestos, at 100°C.; and there can be little doubt that some change in the character of the solids results from employment of the higher temperature. Either set of numbers may be used in the interpretation, but the two methods cannot safely be used interchangeably. The residue is essentially sugars, and it will be noted that in this unfermented juice the added cane sugar is quite as completely inverted as in a fermented wine. Cane sugar as such is present in traces only. The amount of residual solids ranges (in the unfermented grape juice) from 11 per cent (No. 32612) to 33·60 per cent (No. 34403).

It is evident that this is due to the varying amounts of sugar added to the must by different makers; and a certain uniformity among samples of the same brand is observable. This is shown by the following examples:—

Brands.	No.	Dry Solids.	Proof Spirit.
St. David's Wine Co.—			
Imperial Brand	32612	11·00	1·16
"	35344	11·05	0·00
National Drug & Chemical Co.—			
National Brand	34403	33·60	0·00
"	35272	31·86	0·00
N. C. Polson—			
Peurita Brand	33524	27·85	4·12
"	33192	25·63	4·89
"	34312	25·15	5·74
Turner & Co., Toronto—			
Brand	32611	27·00	2·09
"	35274	26·93	3·03
"	35141	29·10	3·30
"	30978	28·06	3·03
Welch's Grape Juice Westfield, N.Y.—			
Brand	33521	18·36	0·00
"	33523	15·82	0·00
"	31307	16·67	0·00
"	31309	16·16	0·00
"	29741	16·51	0·00
"	29742	16·70	0·00
"	34402	19·90	0·00
"	34404	13·78	0·00
"	165	.....	.....
"	32615	16·36	0·00
"	22659	14·86	0·00
"	22660	15·44	0·00
"	22662	16·08	0·00
"	35271	15·21	0·00
"	33193	16·30	0·00
"	33196	16·47	0·00
"	35341	16·37	0·00
"	35343	16·59	0·00
"	35345	14·57	0·00
"	34310	16·20	0·00
"	34970	22·04	0·00
"	34976	16·80	1·28

Brands.	No.	Dry Solids.	Proof Spirit.
Ontario Grape Juice Co., Niagara Falls—			
Ontario Grape Juice	31310	13·57	0·00
Noyes Ontario Grape Juice	31306	17·09	0·00
" "	32614	17·81	0·00
" "	34406	16·53	0·00
" "	34950	17·25	0·00
" "	33194	14·32	0·00
" "	35142	14·59	0·00
" "	35273	17·02	0·01
" "	22658	14·71	0·00
" "	167	14·88	0·00
J. J. McLaughlin, Toronto	31308	20·84	0·00
" "	29739	19·14	0·00
" "	35139	20·04	0·00
" "	30968	19·80	0·00
" "	34311	20·55	0·00
Imperial Brand, Hagar Bros., Welland	33522	17·55	0·00
" "	22661	16·58	0·00
" "	35143	18·22	0·00
" "	33195	17·00	0·00
La Societé Anonyme, France	34314	17·80	0·00
" "	31952	19·25	0·00
" "	34964	18·60	0·00
Duffy's American Fruit Products Co., Rochester	34405	15·37	0·00
" " "	167	.....	.....
Toronto Wine Co.	A	12·48	trace
"	B	39·15	0·70
Ontario Grape Growing & Wine Mfg. Co., St. Catherines	35140	25·34	0·00
" " "	35270	25·61	0·00
" " (Fermented wine)	34313	13·89	25·01
Beach & Clairidge Co., Boston	29740	21·21	0·00
C. E. Scarff, Montreal. (This is a fermented wine)	32613	7·08	18·81
Sterling Brand, T. A. Lytle & Co.	30952	29·11	3·16
Niagara Falls Wine Co. (This is a fermented wine)	34691	12·60	24·69
Jules Robinet, Sandwich	34588	23·98	3·30
Vineland Grape Juice Co., Vineland, N.J	33525	17·68	0·00
Augusta Gely, Taragona, Spain. (This is a fermented wine)	35342	3·28	31·22
Pelee Island Co. (This is practically a fermented wine)	29738	28·70	10·67

The amount of extractive in our commercial unfermented grape juice varies, as we have seen, from about 11 to 33 per cent. König (Chemie der Menschlichen Nahr. and Genussmittel, Band I, S. 1342) quotes 13·5 to 18·9 per cent of extractive for French and German grape juice. Allen (Com. Org. Analysis, Vol. I. p. 77) gives the dry residue for wine must as from 14 to 27 per cent. J. Carter Bell (quoted by Allen) found 22·90 and 20·28 for black, English and white Almeira grapes. These figures, representing grape juice of European production, may not be available as enabling us to interpret results with American grape juices. Unfortunately I have no authoritative records for American grape juice; but it is highly probable that wherever the dry solids much exceed 15 per cent, sugar has been added to the grape juice. In such cases it is clear that the article should be labelled *Sugared Grape Juice*, as a simple statement of fact.

The ash of grape juice, as here illustrated, varies between wide limits, from 0·14 to 0·40 gramme per 100 cubic centimetres. It is very doubtful whether these extremes represent genuine juice. The large majority of the samples analysed yield about 0·20 to 0·30 of ash; and the normal percentage lies between these limits. Still more instructive is the alkalinity of the ash. Fruit juices, and especially the juice of the grape, contain potassium salts of organic acids, which burn to carbonates. The alkalinity of a true grape juice ash, is therefore high, and, so far as can be judged by the tabulated results, corresponds to about 25 cubic centimetres, deci-normal, per cent.

The natural inference in cases like Nos. 33524, 33192 and 34312, which give an alkalinity of 0.4 N-10 per cent is that we are not dealing with true fruit juice: or, if so, that it has undergone some quite unusual treatment. The same remark holds of the series of samples numbered 32611, 35274, 35141, 30978; also of No. 30952; and of the pair of samples 32612 and 35344. The same is true of samples A and B.

The acidity of ordinary grape juice appears to be about 1 to 1·5 per cent (as tartaric acid) and the volatile acids are trifling in amount. When the acidity is decidedly less than 1 per cent it is probable that we are dealing with a factitious juice. Foreign (European) grape juices may have a lower acidity, as illustrated by Nos. 34314, 34952 and 34964,

Finally, it is to be noted that our inspectors obtain, in the case of each sample, three bottles of the grape juice; and these are known by the same number, and are assumed to represent the same article. They should give identical results on analysis, and if the just stated assumption were correct, they would do so. As a matter of fact, the contents of bottles bearing the same number sometimes prove to be very unlike. The results of analysis published herewith were obtained by work done upon the bottle especially intended for the analyst. A second bottle remains, under seal, in the hands of the vendor, while the third bottle is kept in this office, under seal, in the event of its being required under section 15 of the Adulteration Act. In a few cases, this third bottle has been submitted to analysis, and the following instances show how great differences may exist between articles of so-called unfermented grape juice, bearing the same number, and apparently having the same manufacturer. In explanation of the necessity of collecting three bottles, instead of dividing the contents of one bottle into three parts, I may say that where grape juice is preserved by sterilization, and without antiseptics, the fact of opening the bottle causes the certain alteration and destruction of the sample by fermentation. It is by reason of such treatment that samples 165 and 166 were received in unfit condition for analysis.

Number.	Proof Spirit. Per cent.	Extract.
32612	18·81	8·65
Duplicate	2·34	24·93
29738	10·67	32·60
Duplicate	11·05	33·57
31604	24·69	13·39
Duplicate	25·34	11·34
34313	25·01	18·15
Duplicate	24·69	17·92
30952	3·16	31·51
Duplicate	3·71	31·95
33192	4·89	27·79
Duplicate	5·01	27·63
33524	4·12	30·18
Duplicate	4·12	30·85
34312	5·74	28·17
Duplicate	5·74	28·09
35141	3·30	31·35
Duplicate	3·30	30·97
35274	3·03	29·57
Duplicate	3·99	30·92

Fifteen samples of unfermented grape juice were examined in this laboratory in 1902, and the results are published in Bulletin No. 82. Three of these contained above 2 per cent of proof spirit; and five preserved with salicylic acid. The addition of salicylic acid was held by the late chief analyst to be a violation of section 17 of the Adulteration Act. (I c. of R. S. 1906).

The results of analysis now published will serve as material for the defining of unfermented grape juice; but to this end it is necessary that a considerable amount of work be done upon grape juice of known purity, and of Canadian production. The main points requiring elucidation are the following: (1) What is its normal content of dry solid matters? (2) of sugars? (3) What is the normal ash content? (4) Normal alkalinity of the ash? (5) What is the normal acidity of Canadian grape juice?

It is hoped that these points may be cleared up during the next fruit season.

I beg to recommend the publication of this report as Bulletin No. 166.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.
			DISTRICT OF NOVA SCOTIA—				
1908.							
Aug. 5	Unfermented Grape Juice.	33521	H. Wilson, Windsor, N.S.	1½ pts.	75	Welch Grape Juice Co., Westfield, NY	Labelled Pure, from choice, Concord grapes
" 6	"	33522	Methodist Book Room, Halifax.	3 "	90	Hager Bros., Welland, Ont.	Labelled Imperial.
" 7	"	33523	C. A. Barnstead, Halifax.	1½ "	75	Welch Grape Juice Co, Westfield, N.Y.	Labelled Pure, from choice Concord grapes
" 8	Peurita-Unfermented Wine.	33524	A. A. Thompson, Halifax.	3 quts.	1 05	N. C. Polson, Kingston, Ont.	Guaranteed free from alcohol, Labelled 'Peurita. Unfermented Wine. The word "Grape" on seperate label.
" 8	Unfermented Grape Juice.	32525	Jas. D. Walsh, Halifax.	3 pts.	1 20	Vineland Grape Juice Co., New Jersey.	.....
			DISTRICT OF PRINCE EDWARD ISLAND—				
July 30	Unfermented Grape Juice.	31306	Johnson & Johnson, Charlottetown.	3 pts..	1 20	Ontario Grape Juice Co., Niagara Falls.	Labelled Pure Unfermented Grape Juice withoutany adulterant orpreservativewhatever, from selectedgrapes.
" 17	" ..	31307	J. G. Jameson, Charlottetown.	3 "	1 25	Welch Grape Juice Co., Westfield, N.Y	From choice grapes, pure and unadulterated.
Aug. 3	" ..	31308	E. Keir, Kensington.	3 "	1 20	J. J. McLaughlin, Toronto.	From choice Canadian Concords, pressed and sterlized in laboratory.
" 4	" ..	31309	J. F. McNeil, Summerside.	3 "	1 05	Welch Grape Juice Co., Westfield, N.Y	From choiceConcord grapes, pure and unadulterated.
" 5	" .	31310	G. E. Hughes, Charlottetown.	3 "	1 05	Ontario Grape Juice Co., Niagara Falls.	....

SESSIONAL PAPER No. 14

UNFERMENTED GRAPE JUICE.

Results of Analysis.

Spec. Grav.		Alcohol by Volume of Proof spirit.	Extract.		Ash, Gms. per 100 cc.	Alkalinity of water N/10 solution, ash cc. Acid per 100.	Acidity.			Polarization.		Sucrose by Clerget's Formula.	Reducing sugar, Gms. per 100 cc.	Remarks and Opinion of the Chief Analyst.
Of Juice.	Of Distillate.		From Sp. Gr. of residue, Gms. per 100 cc.	48 hrs. drying in water oven, Gms. per 100 cc.			Total.	Fixed Gms. per 100 cc.	Volatile.	Direct.	Invert.			
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
1·0806	0·9999	None.	21·43	18·30	0·26		27·0	1·35	1·35	0·00	−27·0	−27·6	0·11	16·53	Contains no preservatives, dyes, &c.
1·0732	1·0000	"	19·60	17·55	0·23		22·2	0·97	0·03	−20·0	−23·6		0·67	15·09	"
1·0685	0·9998	"	18·34	15·82	0·26		26·0	1·41	1·41	0·03	−21·4	−25·2	0·15	14·04	"
1·1108	0·9967	4·12	30·18	27·85	0·40		0·4	0·58	0·51	0·06	−28·8	−30·8	0·37	27·37	Contains salicylic acid, dyed pink, aniline dye.
	0·9967	4·12	30·85												
1·0760	1·0000	None	20·36	17·68	0·23		22·0	0·90	0·85	0·04	−20·8	−23·6	0·53	16·26	None.

R. J. WAUGH, INSPECTOR.

1·0746	1·0000	None.	19·94	17·69	0·28		20·0	1·05	1·03	0·02	−24·4	−25·6	0·23	16·08	None.
1·0375	0·9997	"	19·64	16·67	0·28		27·6	1·44	1·41	0·03	−22·4	−22·8	0·08	15·37	"
1·0908	0·9999	"	24·24	20·84	0·30		18·8	1·66	1·59	0·06	−24·8	−26·4	0·30	18·98	"
1·0727	0·9994	"	19·45	16·16	0·25		22·6	1·41	1·36	0·04	−23·2	−23·6	0·08	15·25	"
1·0599	0·9998	"	16·67	13·57	0·28		21·8	1·05	1·04	0·01	−20·8	−21·5	0·13	12·23	"

THEO. MOORE, INSPECTOR.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.
							DISTRICT OF NEW BRUNSWICK—
1908.							
July 16	Unfermented Grape Juice.	29738	Foster & Co., 58 Union St. St. John. N.B.	3 bot.	1 20	Pelee Island Wine and Vineyard Co., Ltd., Brantford and Pelee Island, Ont.	Labelled Unfermented Grape Juice. Bottled by vendor from bulk.
" 17	" ..	29739	Nat. Drug and Chem. Co., Mill St., St. John, N.B.	2 "	90	J. J. McLaughlin, Aoronto.	Labelled McLaughlin's Grape Juice, from choicest Canadian Concords, pressed and sterilized in laboratory.
" 22	" ..	29740	The Can. Drug Co., Ltd., 70-72 Prince William St., St. John. N.B.	3 "	75	Beach & Clarridge Co., Boston, Mass.	Labelled Grape Juice, sold as received. Would not guarantee purity and quality.
Aug. 5	" ..	29741	Fairweather Bros., Moncton, N.B.	3 "	1 20	Nat. Drug. Co., St. John, N.B.	From choicest Concord grapes, pure and unfermented, No. 140.
" 15	" ..	29742	Hunt & MacDonald, 597 Queen St., Fredericton, N.B.	2 "	1 05	Welch Grape Juice Co., Westfield, NY.	Welch's Grape Juice.
							DISTRICT OF QUEBEC—
July 28	Unfermented Grape Juice	34402	F. E. Garneau & Frère, 336 Rue St. Jean, Quebec.	3 bot.	90	Welch's Vineland, N.Y.	.....
" 28	" ..	34403	J. Savard, 35 Rue St. Jean, Quebec.	3 "	90	Nat. Drug. and Chem. Co., Canada.	National.....
" 28	" ..	34404	Eudone Patry, 57 Rue St. Jean, Quebec.	3 "	90	" " ..	Welch's.....
" 28	" ..	34405	H. Beautey, 21 Rue de la Fabrique, Quebec,	3 "	54	Laporte & Martin, Montreal.	Duff's Grape Juice, Amer. Fruit Co.
" 28	" ..	34406	" "	3 "	90	Leeming Miles, Montreal.	Noye's Ont. Grape Juice, mfd. by Ont. Grape Juice Co.

SESSIONAL PAPER No. 14

UNFERMENTED GRAPE JUICE—*Continued.*

RESULTS OF ANALYSIS.

Spec. Grav.		Alcohol by Volume of Proof spirit.	Extract.		Ash, Gms. per 100 cc.	Alkalinity of water solution, ash cc* N/10 Acid per 100.	Acidity.			Polarization.		Sucrose by Clerget's Formula.	Reducing sugar, Gms. per 100 cc.	Remarks and Opinion of the Chief Analyst.
Of Juice.	Of Distillate.		From Sp. Gr. of residue, Gms. per 100 cc.	48 hrs. drying in water oven, Gms. per 100 cc.			Total.	Fixed Gms. per 100 cc.	Volatile.	Direct.	Invert.			

J. C. FERGUSON, INSPECTOR.

p. c.	p. c.	p. c.	p. c.	p. c.	p.c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
1·1154	0·9916	10·67	32·60	28·70	0·14	11·6	0·71	0·54	0·13	−12·8	−15·2	0·45	28·91	Contains salicylic acid, dyed with pink aniline dye.
	0·9913	11·08	33·57*											
1·0867	0·9999	None.	23·28	19·14	0·21	19·2	1·50	1·39	0·08	−24·8	−25·6	0·15	18·05	None.
1·0945	0·9998	„	25·16	21·21	0·22	18·6	1·04	0·98	0·05	−32·4	−33·4	0·19	21·44	„
1·0738	0·9995	„	19·74	16·51	0·25	23·8	0·88	0·85	0·03	−26·4	−27·2	0·15	15·95	„
1·0720	0·9996	„	19·24	16·70	0·31	28·0	1·42	1·42	0·00	−24·8	−24·8	None.	14·83	„

E. BELAND, INSPECTOR.

1·0913	0·9998	None.	24·34	19·90	0·20	22·2	0·91	0·89	0·02	−28·8	−29·9	0·20	20·54	Contains salicylic acid.
1·1528	0·9999	„	40·04	33·60	0·23	20·0	1·32	1·26	0·05	−42·4	−43·1	0·13	35·97	None.
1·0664	0·9996	„	17·73	13·78	0·26	24·6	1·36	1·33	0·03	−23·6	−24·0	0·08	13·94	„
1·0716	0·9997	„	19·16	15·37	0·31	25·4	1·08	1·07	0·07	−23·2	−23·6	0·08	15·24	„
1·0778	0·9998	„	20·95	16·53	0·26	21·4	1·27	1·20	0·06	−23·6	−23·6	None.	16·69	„

* Duplicate sample.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer of Furnisher, as given by the Vendor.	Inspector's Report.
						DISTRICT OF ST. HYACINTHE—	
1908. Aug. 6	Unfermented Grape Juice.	165	G. A. Colère, Lac Megantic.	2 bot.	1 50	The Welch Grape Juice Co., Westfield, N.Y.	Bottles were opened to allow me to give part to vendor.
" 14	" ...	166	Thos. Hebert, St. Hyacinthe.	1 "	75	American Fruit Product Co., Rochester, N.Y.	.....
" 21	" ...	167	L.S.Browne, Granby	2 "	60	Ontario Grape Juice Co., Niagara Falls, Canada.	.....
						DISTRICT OF MONTREAL—	
July 17	Unfermented Grape Juice.	32611	R. Turner, 601 Wellington St., Montreal.	3 bot.	75	Turner & Co., Toronto.	Labelled 'Turner & Co's Unfermented Grape Wine.'
" 18	" ...	32612	Gravel Fréres, 382 St. Catherine St. W., Montreal.	3 "	1 20	St. David's Wine Co.	Imperial Brand..
" 18	" ...	32613	Chas. E. Scarff, 358 St. Catherine St., W., Montreal.	3 "	90	Vendors	.....
" 18	" ...	32614	T. R. Goulden, 481 Bleury St., Montreal.	3 "	1 05	Ontario Grape Juice Co.	.....
" 18	" ...	32615	Henri Lalonde, 180 St. Catherine St. E., Montreal.	3 "	1 05	The Welch Grape Juice Co.	.....
Sept. 17	Grape Juice....	Spec'l 32975	C. W. Coates, 298 St. Catherine St. W. Montreal.	3 "	90	G. A. Drummond, Roebuck, Ont.	'Fruit of the Vine.'
						DISTRICT OF OTTAWA—	
July 14	Unfermented Grape Juice.	22658	W. H. Raney, Prescott, Ont.	3 bot.	65	Ontario Grape Juice Co., Niagara Falls, Ont.	Labelled Pure Unfermented Grape Juice, without the addition of any adulterant or preservative whatever.

SESSIONAL PAPER No. 14

UNFERMENTED GRAPE JUICE—*Continued.*

Results of Analysis.																
Spec. Grav.		Alcohol by Volume of Proof spirit.	Extract.			Ash, Gms. per 100 cc.	Alkalinity of water, N/10 solution, ash cc³ Acid per 100.	Acidity.			Polarization.		Sucrose by Clerget's Formula.	Reducing sugar, Gms. per 100 cc.	Remarks and Opinion of the Chief Analyst.
Of Juice.	Of Distillate.		From Sp. Gr. of residue, Gms. per 100 cc.	48 hrs. drying in water oven, Gms. per 100 cc.				Total.	Fixed Gms. per 100 cc.	Volatile.	Direct.	Invert.			
J. C. BOULEAU, INSPECTOR.															
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
															Received in mouldy condition; unfit for analysis. Bottles were opened by collector, and contents divided, but not sterilized.
1·0665	1·0000	None.	17·84	14·88	0·28		23·0	1·18	1·18	0·00	−19·6	−19·6	None.	13·76	Contains no preservatives, dyes, &c.
1·1134	0·9999	None.	30·10		0·20		21·2	1·00	1·00	0·00	−13·6	−26·8	2·56	21·95	No preservatives or dyes.
J. J. COSTIGAN, INSPECTOR.															
1·1102	0·9982	2·09	29·61	27·00	0·21		0·0	0·56	0·51	0·04	−28·8	−28·8	None.	26·78	Contains salicylic acid, strongly dyed, light red aniline dye.
1·0480	0·9990	1·16	12·74	11·00	0·14		3·4	0·53	0·53	0·00	−10·0	−12·8	0·45	10·33	Contains no preservatives, dyes, &c.
1·0192	0·9860	18·81	8·65	7·08	0·23		13·2	1·35	1·22	0·11	−20·4	−20·4	None.	5·26	Contains salicylic acid; not well stoppered; heavy sediment.
1·0920	0·9980	2·34	24·93												
1·0788	0·9998	None.	20·95	17·81	0·24		21·0	1·14	1·11	0·03	−23·6	−24·0	0·08	17·14	None.
1·0730	0·9994	"	19·55	16·36	0·27		19·8	0·88	0·76	0·10	−26·0	−26·8	0·15	15·74	"
J. A. RICKEY, INSPECTOR.															
1·0664	0·9999	None.	17·78	14·71	0·25		21·4	1·17	1·11	0·05	−20·8	−21·6	0·15	13·80	None.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.
			DISTRICT OF OTTAWA—				
1908.							
July 22	Unfermented Grape Juice.	22659	S. J. Stewenson, Ottawa, Ont.	3 bot..	1 65	The Welch Grape Juice Co., Westfield, N.Y.	Labelled Welch's Grape Juice, from choicest Concord grapes. Pure and unfermented.
" 22	" ..	22660	J. S. Brown, Ottawa, Ont.	3 " .	1 10	" " ..	" " ..
" 23	" ..	22661	D. H. McIntosh, M. D., Carleton Place.	3 "	75	Hager Bros., Welland, Ont.	Labelled Imperial Unfermented Juice of the Grape.
" 25	" ..	22662	Dr. Lyon, Shawville, Que.	3 " .	1 20	The Welch Grape Juice Co., Westfield, N.Y.	Labelled Welch's Grape Juice from choicest Concord grapes. Pure and unfermented.
			DISTRICT OF KINGSTON—				
July 20	Unfermented Grape Juice.	35270	G. W. Mahood, Kingston.	3 bot..	75	Ontario Grape Growing and Wine Mfg. Co., St. Catherines	....
" 21	" ..	35271	H. Wade, Kingston.	3 " .	1 00	The Welch Grape Juice Co., Westfield, N.Y.	....
" 21	" ..	35272	W. W. Gibson, Kingston.	3 " .	90	Nat. Drug and Chem. Co.	National.....
" 22	" ..	35273	D. M. Waters, Belleville.	3 " .	75	Ontario Grape Juice Co., Niagara Falls, Ont.	... .
" 22	" ..	35274	R. Templeton, Belleville.	3 " .	1 00	Turner & Co., Toronto.	... .
			DISTRICT OF TORONTO—				
July 29	Unfermented Grape Juice.	35139	J. J. McLaughlin, Ltd., Sherbourne St., Toronto.	3 bot..	60	Vendors	Grape juice from choicest Canadian Concords. Pressed and sterilized pure and unfermented with granulated sugar added.

SESSIONAL PAPER No. 14

UNFERMENTED GRAPE JUICE—*Continued*

Results of Analysis.																
Spec. Grav.			Extract.				Acidity.				Polarization.					Remarks and Opinion of the Chief Analyst.
Of Juice.	Of Distillate.	Alcohol by Volume of Proof spirit.	From Sp. Gr. of residue, Gms. per 100 cc.	48 hrs. drying in water oven, Gms. per 100 cc.	Ash, Gms. per 100 cc.	Alkalinity of water soluton, ash c.c. Acid per 100 cc.	Total.	Fixed Gms. per 100 cc.	Volatile.		Direct.	Invert.	Sucrose by Clegget's Formula.	Reducing sugar, Gms. per 100 cc.		
J. A. RICKEY, INSPECTOR—*Concluded.*																
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		p. c.	p. c.	p. c.		p. c.	p. c.	p. c.	p. c.		
1·0666	0·9996	None.	17·80	14·86	0·24		24·0	1·11	1·36	0·07	−21·2	−22·0	0·15	13·86		None.
1·0693	0·9995	"	18·59	15·44	0·30		28·4	1·47	1·38	0·07	−25·2	−25·2	None.	14·48		"
1·0740	0·9995	"	19·76	16·58	0·25		14·2	0·90	0·96	0·03	−20·0	−21·6	0·30	16·38		"
1·0743	0·9998	"	19·94	16·08	0·33		32·0	1·41	1·42	0·02	−20·8	−22·0	0·23	15·62		"
J. HOGAN, INSPECTOR.																
1·1141	0·9998	None.	30·22	25·51	0·23		23·2	0·88	0·82	0·05	−31·2	−32·0	0·15	26·38		None.
1·0688	0·9991	"	18·42	15·21	0·24		22·6	1·38	1·37	0·01	−24·8	−25·9	0·20	14·40		"
1·1468	0·9998	"	38·45	31·86	0·21		22·4	0·87	0·79	0·07	−43·6	−46·0	0·45	34·86		"
1·0820	0·9996	"	21·83	17·02	0·28		24·4	1·24	1·22	0·02	−25·6	−26·4	0·15	17·31		"
1·1087	0·9975 0·9968	3·03 3·99	29·57 30·92 *	26·93	0·18		0·4	0·58	0·58	0·00	−24·8	−27·6	0·52	27·21		Contains salicylic acid, strongly dyed bright red aniline dye.
H. J. DAGER, INSPECTOR.																
1·0868	0·9999	None.	23·18	20·04	0·25		20·4	1·57	1·56	0·01	−22·6	−24·4	0·34	18·28		None.

* Duplicate sample.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.
							DISTRICT OF TORONTO—
1908.							
July 31	Unfermented Grape Juice.	35140	The Ont. Grape Growing & Wine Mfg. Co., St. Catharines.	3 bot.	50	Vendors	Not labelled. Vendor said that on account of grapes being frozen, sugar was added with juice to sweeten and improve.
Aug. 10	" ..	35141	Turner & Co., Jarvis St., Toronto.	3 " .	75	"	Labelled Turner's Unfermented Grape Juice. Mfd. by Turner & Co.
" 11	" ..	35142	W. H. Snyder, Niagara Falls.	3 " .	75	Vendor	Pure unfermented grape juice, made by Ont. Grape Juice Co. from selected grapes. Unadulterated and no preservative added. Sold as pure grape juice.
" 11	" ..	35143	Hager Bros, Welland.	3 " .	75	Vendors.	Labelled Imperial juice of the grape unfermented. No preservatives used. Preserved by entire exclusion of air.
							DISTRICT OF LONDON—
July 21	Unfermented Grape Juice.	30952	Walsh Bros., Stratford.	3 bot..	75	T. A. Littell & Co., Toronto.	Sterling Brand. Purchased as unfermented grape juice.
" 29	Grape Juice	30968	William Grewer, Brussels.	3 " .	75	J. J. McLaughlin, Toronto.	Labelled 'Unfermented Grape Wine.' The word 'grape' being pasted on the label.
Aug. 1	" ..	30978	Cardino Bros., Seaforth.	3 " .	75	Turner & Co., Toronto.	

SESSIONAL PAPER No. 14

UNFERMENTED GRAPE JUICE—*Continued.*

RESULTS OF ANALYSIS.

Spec. Grav.		Alcohol by Volume of Proof spirit.	Extract.		Ash, Gms. per 100 cc.	Alkalinity of water solution, ash cc. N/10 Acid per 100.	Acidity.			Polarization.		Sucrose by Clerget's Formula.	Reducing sugar, Gms. per 100 cc.	Remarks and Opinion of the Chief Analyst.
Of Juice.	Of Distillate.		From Sp. Gr. of residue, Gms. per 100 cc.	48 hrs. drying in water oven, Gms. per 100 cc.			Total.	Fixed Gms. per 100 cc.	Volatile.	Direct.	Invert.			
H. J. DAGER, INSPECTOR *Concluded.*														
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
1·1157	0·9995	None	30·62	25·34	0·18	24·2	0·87	0·76	0·09	−36·8	−39·8	0·52	27·14	None
1·1186	0·9973	3·30	31·35	29·10	0·17	0·4	0·63	0·57	0·05	−34·8	−34·3	None	29·09	Contains salicylic acid—(strong reaction)—strongly dyed scarlet, aniline dye.
	0·9973	3·30	30·97 *											
1·0647	1·0000	None	17·31	14·59	0·24	21·6	0·75	0·73	0·02	−21·6	−21·4	0·15	13·83	Contains no preservatives, dyes, etc.
1·0771	0·9996	None	20·48	18·22	0·30	21·6	0·90	0·80	0·09	−19·6	−22·0	0·45	16·55	
T. KIDD, INSPECTOR.														
1·1160	0·9971	3·16	31·51	29·11	0·25	0·4	0·75	0·69	0·05	−30·8	−31·6	0·15	28·18	No preservatives Dyed.
	0·9970	3·71	31·95 *											
1·0872	0·9997	None	23·26	19·80	0·19	19·8	1·58	0·56	0·02	−24·0	−24·8	0·52	18·48	"
1·1168	0·9975	3·03	30·92	28·06	0·16	0·4	0·69	0·54	0·12	−31·2	−34·0	0·52	28·91	Contains salicylic and—(strong reaction)—strongly dyed bright pink, aniline dye.

* Duplicate sample.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Addresses of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.
				Quantity.	Cents.		
			DISTRICT OF WINDSOR—				
1908.							
Aug. 11	Unfermented Grape Juice.	34588	E. B. Smith, London	3 bot.	75	Jules Robinet, Sandwich, Ont.	.....
" 13	" ..	34604	Sharpe Liquor Store, St. Mary's.	3 "	60	Niagara Falls Wine Co.	Labelled 'Pure Canadian Grape Wine.'
			DISTRICT OF MANITOBA—				
July 29	Unfermented Grape Juice.	33192	D. E. Clement, Brandon.	3 bot.	2 25	N. C. Polson & Co., Kingston, Ont.	Peurita unfermented wine. Guaranteed free from alcohol or spirits.
" 29	" ..	33193	Scott's Drug Store, Brandon.	3 "	2 25	The Welsh Grape Juice Co., Westfield, N.Y.	From choicest grapes. Pure and unfermented.
Aug. 12	" ..	33194	The Gordon Mitchell Drug Co., Winnipeg.	3 "	1 50	Ontario Grape Juice Co., Niagara Falls, Ont.	Noye's Ontario unfermented grape juice.
" 12	" ..	33195	" " ..	3 "	1 95	Hager Bros., Welland, Ont.	Imperial unfermented juice of the grape.
" 13	" ..	33196	W. F. C. Brathwaite, Winnipeg.	3 "	1 05	The Welch Grape Juice Co., Westfield, N. Y.	From choicest grapes. Pure and unfermented.
			DISTRICT OF CALGARY—				
Aug. 14	Unfermented Grape Juice.	35341	Wood & Green, Calgary.	3 pts.	1 35	Welch Grape Juice Co., Westfield, N. Y.	.....
" 14	" ..	35342	Great West Liquor Co., Calgary.	3 qts.	1 50	Augusta Gely, wine grower, Taragona, Spain.	Labelled 'Gely's non-alcoholic wine.'
" 14	" ..	35343	Owen H. Bot, Calgary.	3 pts.	1 35	Welch Grape Juice Co., Westfield, N. Y.	.....
" 14	" ..	35345	Calgary Wine & Spirit Co., Calgary.	3 qts.	2 50	J. W. Lee & Co., Toronto.	Labelled 'St. David Wine Growers Co'
" 14	" ..	35345	Bole Drug Co., Calgary.	3 pts.	1 00	Welch Grape Juice Co., Westfield, N. Y.	.....

SESSIONAL PAPER No. 14

UNFERMENTED GRAPE JUICE—*Continued.*

Results of Analysis.

Spec. Grav.		Alcohol by Volume of Proof spirit.	Extract.		Ash, Gms. per 100 cc.	Alkalinity of water, solution, ash, cc's N/10 Acid per 100.	Acidity.			Polarization.		Sucrose by Clerget's Formula.	Reducing sugar, Gms. per 100 cc	Remarks and opinion of the Chief Analyst.
Of Juice.	Of Distillate.		From Sp. Gr. of residue, 4 ins. per 100 cc.	48 hrs. drying in water oven, Gms. per 100 cc.			Total.	Fixed Gms. per 100 cc.	Volatile.	Direct.	Invert.			
JNO. TALBOT, INSPECTOR.														
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
1·0968	0·9973	3·30	26·11	23·98	0·22		14·2	1·05	0·63	0·34	—23·2	—26·8	0·67	23·52	Contains salicylic acid—(very marked reaction).
1·0334	0·9823	24·69	13·39	12·60	0·22		9·6	0·60	0·45	0·12	—20·8	—21·6	0·15	10·70	None (fermented wine).
	0·9819	25·34	14·34	*										
A. C. LARIVIERE, INSPECTOR.														
1·1003	0·9961	4·89	27·79	25·63	0·16		0·4	0·43	0·39	0·03	—28·8	—31·6	0·52	24·73	Contains salicylic acid, dyed pink. Aniline dye.
	0·9960	5·01	27·63	*											
1·0704	0·9997	None	18·83	16·30	0·25		23·6	0·90	0·87	0·03	—24·8	—25·1	0·06	15·18	Contains no preservatives, dyes, &c.
1·0638	1·0000	„	17·06	14·32	0·26		20·8	1·08	1·05	0·03	—19·2	—19·8	0·11	13·11	„ „
1·0727	0·9998	„	19·43	17·00	0·28		24·4	1·07	1·02	0·04	—19·6	—20·2	0·11	15·60	„ „
1·0704	0·9994	„	18·81	16·47	0·26		22·0	1·01	0·88	0·11	—24·0	—25·2	0·23	16·24	„ „
R. W. FLETCHER, INSPECTOR.														
1·0717	0·9995	None	19·19	16·37	0·28		25·6	1·47	1·42	0·04	—25·6	—25·6	None	14·85	Contains no preservatives, dyes, &c.
0·9954	0·9784	31·22	4·30	3·28	0·20		4·4	0·06	0·45	0·15	—8·80	—9·40	0·11	2·08	None (fermented wine).
1·0728	0·9992	None	19·45	16·59	0·30		22·8	1·41	1·37	0·04	—25·2	—26·0	0·15	15·20	„ „
1·0480	0·9993	„	12·78	11·05	0·16		1·6	0·55	0·48	0·06	—8·00	—8·40	0·08	10·18	„ „
1·0655	0·9993	„	17·63	14·57	0·26		22·0	1·42	1·41	0·01	—23·6	—24·0	0.08	13·48	„ „

* Duplicate sample.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vender.	Inspector's Report.
							DISTRICT OF VANCOUVER—
1908.							
July 30	Unfermented Grape Juice.	34310	Lapatouré & McRae, Vancouver, B.C.	3 pts.	1 05	The Welch Grape Juice Co., Westfield, N. Y.	Labelled 'Pure and unfermented.
" 30	" ..	34311	Nelsons Drug Store, Vancouver, B.C.	3 "	1 20	J. J. McLaughlin, Toronto, Ont.	" "
" 30	" ..	34312	W.M. Harrison, Vancouver, B. C.	3 qts.	1 50	N. C. Polson & Co., Kingston, Ont.	Labelled 'Peurita Unfermented Grape Juice.' Guaranteedfree from alcohol or spirits.
" 30	" ..	34313	Woodwards Deptl. Stores, Vancouver, B. C.	3 pts.	1 20	The Ont. Grape Growing and Wine Mfg.Co.,St. Catherines, Ont.	Sold in bulk and guaganteed by vendor as unfermented.
" 30	" ..	34314	H. McDowell, & Co., Vancouver, B.C.	3 qts.	3 00	La Société Anonyme Du Mas de la Ville. Arlis, France.	Imported and supplied by R. P. Rithet, Victoria, Guaranteed by vendor unfermented grape juice.
							DISTRICT OF VICTORIA—
July 22	Unfermented Grape Juice.	34952	Saunders Grocery Co., Ltd.	3 bot.	1 50	Ingersoll & Mellnish, London, Eng.	Mas-de-la Ville wine.
" 23	" ..	34960	Fred. Carne.....	3 "	1 05	Ontario Grape Juice Co., Niagara Falls, Can.	Noye's Ontario Grape Juice.
" 23	" ..	34964	Copas & Young.....	3 "	1 00	Ingersoll & Mellnish, London, Eng.	Mas-de-la Ville wine.
" 24	" ..	34970	Dixi H. Ross & Co..	3 "	1 20	The Welch Grape Juice Co., Westfield, N. Y.	Welch's grape juice.
" 31	" ..	34976	Geo. E. Fraser	3 "	1 20	The Welch Grape Juice Co., Westfield, N. Y.	" "
Oct. 29	Pure Black Cherry Wine.	A	Toronto Wine Co., Toronto, Ont.	.....	.....	Toronto Wine Co., Toronto, Ont.	Sample labelled 'Pure Black Cherry Wine. Bottled by Toronto Wine Co., Toronto, Ont.

UNFERMENTED GRAPE JUICE—*Continued.*

RESULTS OF ANALYSIS.

Spec. Grav.		Alcohol by Volume of Proof spirit.	Extract.			Acidity.				Polarization		Sucrose by Clerget's Formula.	Reducing sugar, Gms. per 100 cc.	Remarks and Opinion of the Chief Analyst.
Of Juice.	Of Distillate.		From Sp. Gr. of residue, Gms. per 100 cc.	48 hrs. drying in water oven, Gms. per 100 cc.	Ash, Gms. per 100 cc.	Alkalinity of water solution, ash $\frac{N}{10}$ Acid per 100.	Total.	Fixed Gms. per 100 cc.	Volatile.	Direct.	Invert.			
J. F. POWER, INSPECTOR.														
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
1·0755	0·9997	None	20·14	16·20	0·23	22·0	0·81	0·81	0·03	−21·4	−25·5	0·20	16·55	None.
1·0881	0·9999	„	23·50	20·55	0·24	18·6	1·48	1·48	0·00	−23·6	−23·6	None	19·05	„
1·1011	0·9954	5·74	28·17	25·15	0·28	0·4	0·71	0·66	0·04	−32·0	−34·4	0·45	24·85	Contains salicylic acid, dyed with pink aniline dyes.
	0·9954	5·74	28·09 *											
1·0406	0·9821	25·01	18·15	13·89	0·22	8·0	0·61	0·43	0·14	−20·8	−21·1	0·06	13·94	Contains salicylic acid. Labelled 'Unfermented Grape Juice.'
	0·9823	24·69	17·92 *											
1·0785	1·0000	None	20·88	17·80	0·25	21·4	0·55	0·59	0·04	−24·4	−24·4	None	18·13	None.
D. O'SULLIVAN, INSPECTOR.														
1·0813	1·0000	None	21·63	19·25	0·21	19·8	0·59	0·51	0·06	−24·0	−24·8	0·15	18·19	Contains no preservatives, dyes, &c.
1·0755	0·9996	„	20·21	17·25	0·30	12·4	1·26	1·23	0·03	−21·2	−22·8	0·30	15·87	„ „
1·0755	1·0000	„	20·18	18·60	0·24	23·0	0·57	0·54	0·03	−23·2	−23·6	0·08	18·10	„ „
1·0920	0·9995	„	25·01	22·01	0·28	21·8	1·44	1·44	0·00	−26·8	−27·6	0·15	20·00	„ „
1·0721	0·9989	1·28	19·39	16·80	0·38	16·8	0·87	0·82	0·04	−26·4	−27·2	0·15	15·10	„ „
1·0481	0·9998	Trace.	12·48		0·04	3·2†	0·65			+27·6	−13·2	7·92		Sample strongly dyed, gives strong reaction for salicylic acid. Both wine and ether Extract smell strongly of benzaldehyde. Sp. gr. of dealcoholized wine = 1·0482 C.C.F.

* Duplicate sample. † Expressed as citric acid.

Date of Collection.	Nature of Sample.	No. of Sample.	Nature and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.
				Quantity.	Cents.		
							DISTRICT OF VICTORIA—
1908.							
Oct. 29	Pure Unfermented Wine, (Black Cherry)	B	Not known.....	.....	.....	Toronto Wine Co., Toronto, Ont.	Sample labelled 'Pure Unfermented Wine, Black Cherry.

SESSIONAL PAPER No. 14

UNFERMENTED GRAPE JUICE—*Concluded.*

Results of Analysis.

Spec. Grav.		Alcohol by Volume of Proof spirit.	Extract.		Ash, Gms. per 100 cc.	Alkalinity of water, N/10 solution, ash cc. Acid per 100.	Acidity.			Polarization		Sucrose by Clerget's Formula.	Reducing sugar, Gms. per 100 cc.	Remarks and Opinion of the Chief Analyst.
Of Juice.	Of Distillate.		From Sp. Gr. of residue, Gms. per 100 cc.	48 hrs. drying in water oven, Gms. per 100 cc.			Total.	Fixed Gms. per 100 cc.	Volatile.	Direct.	Invert.			

D. O'SULLIVAN, INSPECTOR—*Concluded.*

p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
1 1482	0·9994	0 70	39·15		0 08	9 2	1 08			−34 6	−40 0	1 05		Sample strongly dyed, red aniline dye. Gives strong reaction for salicylic acid. Flavor and odor somewhat of raspberry. Sp. gr. of dealcoholized wine 1 1496.

APPENDIX Q.

BULLETIN No. 167—SPIRITUS ÆTHERIS NITROSI.

Ottawa, December 9, 1908.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I have the honour to report upon 77 samples of *Spiritus Ætheris Nitrosi* or Spirit of Nitrous Ether, collected throughout Canada in October last.

This important drug consists essentially of a solution of ethyl nitrite in alcohol. The directions given for its preparation in the British Pharmacopœia are such as to produce a solution answering the following official tests. Treated for decomposition of the nitrite, at normal temperature and pressure, it should yield, 'when freshly prepared, at least 6¼, but not more than 7, volumes of nitric oxide gas, corresponding to at least 2½ parts by weight of ethyl nitrite in 100 parts by weight of the spirit: and even after it has been kept for some time, and the vessel containing it has occasionally been opened, it should yield not much less than 5 times its volume of the gas, corresponding to nearly 2 per cent by weight of ethyl nitrite or a minimum of 1¾ per cent.'

The United States Pharmacopœia requires 4 per cent of ethyl nitrite in the freshly prepared article, corresponding to 11 times its volume of nitric oxide. The percentage content in ethyl nitrite, as given in the table of analyses, is calculated upon the basis of 4 per cent ethyl nitrite, equivalent to 11 volumes of nitric oxide.

It may be incidentally noted that Dr. Leech (The *Lancet*, London, Feb., 1889) has shown that this preparation owes its characteristic physiological properties to its content of ethyl nitrite. But, apart from this consideration, so long as the article remains pharmacopœal, it is the duty of this department, as administering the Adulteration Act, to see that the requirements of the Pharmacopœias are met. The following percentages of ethyl nitrite are distinctly required by the pharmacopœias in question.

BRITISH PHARMACOPŒIA.

For freshly prepared Spirit of Nitrous Ether.

	Per cent.
Maximum	2·55
Minimum	2·27
For spirit 'kept some time, &c.'	
Minimum	1·75

Requires 4 per cent of ethyl nitrite.

I am compelled to pronounce all samples containing less than 1·75 per cent of ethyl nitrite as a lulterated under section 7 of the Adulteration Act (R.S. 1906. chap. 133).

It is well known that this preparation gradually loses its strength on keeping. The fact is expressly stated in the pharmacopœias. It follows that druggists should take proper precautions to enable them to guarantee the article which they dispense, as meeting at least, the minimum strength officially required. It will be seen that four (4) samples examined contain no ethyl nitrite whatever; while (15) fifteen others contain less than half of one per cent. A physician prescribing such an article would assuredly be disappointed in results; and when we bear in mind that this drug is 'much used in

febrile conditions, to produce critical sweating, as a diuretic to relieve strangury produced by cantharides, in all painful affections of the urinary apparatus, whether occasioned by calculous or inflammatory disorders, and in affections of the kidneys, in which congestion of those organs occurs. . . . . and to quiet nervous agitation,' we can realize, to some extent, the danger to the public which is involved in the failure of druggists to keep this drug up to pharmacopœal standards.

The samples now reported are classified as follows:—

	Samples.
Genuine	28
Adulterated	49
Total	77

It thus appears that above 63 per cent of these samples are adulterated.

The last examination of Spirit of Nitrous Ether was made in 1891, and the results published in Bulletin No. 23. On that occasion nine (9) samples were examined, and only three (3) were reported as up to standard strength.

It is evident that the retail druggist must be held responsible for the proper strength of this article since it is so liable to lose strength on keeping; especially when the container is frequently opened. The late Mr Harrison, reporting upon samples examined by him in 1891, says:—'Samples which I prepared according to the B. P. process, and kept in glass-stoppered bottles, entirely filled, were of full strength after keeping one year; but after the bottle was opened, and on using out of it daily, it gradually deteriorated, so that I think it ought to be kept in bottles completely full, and with glass stoppers, and of such size that it will be disposed of in about a fortnight after being opened.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

BULLETIN No. 167—SPIRITUS

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.
			DISTRICT OF NOVA SCOTIA—			
1908.						
Oct. 13	Spirit of nitrous ether	33751	Geo. Friend, Sydney, N.S.	3 oz..	30	Nat. Drug Co., Halifax, N.S.
" 13	" ..	33752	J. J. Turnbull, Sydney, N.S.	3 " ..	25	" " ..
" 15	" ..	33753	Crowe Bros., Truro, N.S..	3 " ..	25	E. Merck, Germany.... ...
" 15	" ..	33754	E. A. Smith, Truro, N.S..	3 " ..	35	Unknown .....
" 16	" ..	33755	A. V. Rand, Wolfville, N.S.	3 " ..	35	E. Merck ....
			DISTRICT OF PRINCE EDWARD ISLAND—			
Oct. 29	Spirit of nitrous ether	31411	N. R. Bovyer, Crapaud ...	3 oz..	30	Lyman Sons & Co., Montreal.
" 29	" ..	31412	J. & G. Jamieson, Charlottetown.	3 " ..	30	" " ..
" 29	" ..	31413	J. E. Gallant, Tignish....	3 " ..	30	Nat. Drug Co., Halifax, N.S.
" 29	" ..	31414	McFayden & McLellan, Summerside.	3 " ..	30	Can. Drug Co., St. John, N.B.
" 29	" ..	31415	Edgar Keir, Kensington...	3 " ..	30	Howard & Song, Stratford, Eng.
			DISTRICT OF NEW BRUNSWICK—			
Oct. 19	Spirit of nitrous ether	29841	Nat. Drug and Chemical Co., St. John, N.B.	3 oz..	25	Nat. Drug and Chemical Co., St. John, N.B.....
" 21	" ..	29845	W. Hawker & Son, St. John, N. B.	3 " ..	30	Howard & Sons, Stratford, Eng.
Nov. 6	" ..	29846	Geo. O. Spencer, Moncton, N.B.	3 " ..	30	Not known .....
" 7	" ..	29847	T. J. Durick, Newcastle, N.B.	3 " ..	25	Evans Sons & Co., London, Eng.
" 18	" ..	29848	Chas. A. Burchill, Fredericton, N.B.	3 " ..	30	Nat. Drug and Chemical Co., St. John, N.B.
			DISTRICT OF QUEBEC—			
Oct. 21	Spirit of nitrous ether	34478	F. E. Gilbert, Rivière du Loup.	3 oz..	30	Lyman & Sons, Montreal. .
" 21	" ..	34479	S. C. Clouthier, Rivière du Loup.	3 " ..	30	W. Brunette et Cie, Quebec.
" 21	" ..	34481	Wm. Kane, Rivière du Loup.	3 " ..	25	Lyman & Sons, Montreal...
Nov. 9	" ..	34491	Arthur Gagnon, Murray Bay.	4 " ..	32	W. Brunette et Cie, Quebec.
" 9	" ..	34492	Dr. T. A. Lapointe, Murray Bay.	6 " ..	45	" " ..
			DISTRICT OF ST. HYACINTHE—			
Oct. 8	Spirit of nitrous ether	880	J. S. Trumble, Montreal.	3 oz..	35	Lyman Sons & Co., Montreal
" 12	" ..	881	Omer St. Amour, Ste. Agathe des Monts.	3 " ..	25	" " ..
" 14	" ..	882	T. Gaudet, Joliette.	3 " ..	25	" " ..
" 16	" ..	883	C. Denault, 73 St. Catherine, Vianville.	3 " ..	25	Lyman Knox & Co., Montreal.
" 30	" ..	884	H. W. Reynolds, Montreal.	3 " ..	25	Not known ....

ÆTHERIS NITROSI.

Inspector's Report.	Results of Analysis. Nitric Oxide Gas. Vol. per cent.	Ratio, Vol. of Gas to Vol. of Liquid.	Per cent. Ethyl Nitrite.		Remarks, and Opinion of the Chief Analyst.
R. J. WAUGH, INSPECTOR.					
	p. c.	p. c.	p. c.		
	480	4 8	1 75	Up to minimum standard.	Genuine.
	364	3 7	1·35	Below minimum standard.	Adulterated.
	170	1·7	0·62	" "	"
	520	5 2	1 89	Up to minimum standard.	Genuine.
	716	7 2	2 62	" "	"
THOS. MOORE, INSPECTOR.					
	000	0·0	0 0	Below minimum standard.	Adulterated.
	100	1·0	0 36	" "	"
	360	3 6	1 31	" "	"
	50	0·5	0·18	" "	"
	720	7 2	2 62	Up to standard	Genuine.
J. C. FERGUSON, INSPECTOR.					
Labelled by company	490	4 9	1 78	Up to standard	Genuine.
	350	3·5	1 28	Below minimum standard.	Adulterated.
	580	5·8	2 11	Up to standard	Genuine.
Furnished to vendor by Nat. Drug and Chemical Co.	630	6·3	2 29	"	"
Sample filled from original package.	548	5·5	2 00	"	"
E. BELAND, INSPECTOR.					
	200	2 0	0 73	Below minimum standard.	Adulterated.
	300	3·0	1·09	" "	"
	000	0·0	0·0	" "	"
	200	2·0	0 73	" "	"
	00	0 0	0·0	" "	"
J. C. ROULEAU, INSPECTOR.					
	190	1·9	0·69	Below minimum standard.	Adulterated.
	42	0 4	0 15	" "	"
	206	2 1	0 77	" "	"
	200	2 0	0 73	" "	"
	20	0·2	0·07	" "	"

BULLETIN No. 167—SPIRITUS

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.
						DISTRICT OF MONTREAL—
1908. Oct. 5	Spirit of nitrous ether	32776	Wright & Co., St. Johns, Que.	3 oz.	25	Lyman Sons & Co., Montreal
" 8	" ..	32777	P. E. Chevalier, Sorel, Que.	3 " ..	30	Not known.....
" 8	" ..	32778	Dr. A. R. Larochelle, Sorel, Que.	3 " ..	25	Lyman, Knox & Co., Montreal.
" 9	" ..	32779	F. T. Ansell, Sherbrooke..	3 " ..	30	Nat. Drug and Chemical Co., Ltd., Montreal.
" 9	" ..	32780	Dr. Chagnon, Sherbrooke..	3 " ..	25	Not known.....
						DISTRICT OF OTTAWA—
Sept. 30	Spirit of nitrous ether	22701	Dr. J. W. McIntosh, Vankleek Hill.	3 oz..	25	Lyman Sons & Co., Montreal
Oct. 1	" ..	22702	John Channonhouse, Eganville.	3 " ..	25	Nat. Drug Co., Ottawa. ...
" 9	" ..	22703	D. J. Ritza, Renfrew	3 " ..	25	Not known..... .....
" 13	" ..	22704	W. A. Henderson, Ottawa.	3 " ..	30	Ottawa Drug Co., Ottawa...
" 13	" ..	22705	Thos. A. Brownlee, Ottawa	3 " .	30	Nat. Drug and Chemical Co., Ottawa.
						DISTRICT OF KINGSTON—
Oct. 29	Spirit of nitrous ether	36076	F. Hoag, Kingston.....	3 oz..	15	H. Skinner, Kingston.....
" 29	" ..	36077	A. P. Chown, Kingston ...	3 " ..	30	" " .....
Nov. 3	" .	36078	G. Watson, Port Hope ...	3 " ..	15	Nat. Drug Co.. .....
" 3	" ..	36079	H. W. Mitchell, Port Hope	3 " ..	25	" .. ..
" 4	" ..	36080	E. Gregory, Lindsay	3 " ..	15	Lyman, Toronto..... .....
						DISTRICT OF TORONTO—
Oct. 23	Spirit of nitrous ether	36146	Hennessy Drug Store, Ltd., Hamilton.	3 oz..	25	Dom. Drug Co., Ltd., Hamilton.
" 23	" ..	36147	Harry P. Leeter, Hamilton	3 " ..	25	" " ..
" 26	" .	36148	H. A. Rowland, Toronto..	3 " ..	15	Lyman Bros. & Co., Toronto.
" 26	" ..	36149	F. B. Bunting, Toronto ...	3 " ..	30	The Drug Trading Co , " ..
" 27	" ..	36150	S. B. Pretty, Toronto.....	3 " ..	15	Nat. Drug Co., Toronto.....
						DISTRICT OF LONDON—
Oct. 7	Spirit of nitrous ether	30503	Geo. M. McKendrek, Kincardine.	3 oz..	30	J. Winer & Co., Hamilton..
" 7	" ..	30510	L. A. Hacking, Listowell..	3 " ..	15	Vendor..... ....
" 12	" ..	30520	W A. McConnell, Clinton	3 " ..	16	Canada Drug Co., London..
" 5	" ..	30984	S. A. Hicks, Goderich ...	3 " ..	30	Not known..... .. ..
" 6	" ..	30993	J. M. Hamilton, Blythe...	3 " ..	30	Nat. Drug Co., London, Ont.
" 6	" ..	30995	Walter McKibbon, Wingham.	3 " ..	30	The Drug Traiding Co., Toronto.
" 8	" .	30514	Chas. Aberhart, Seaforth .	3 " ..	30	Lyman Bros. & Co., Toronto

SESSIONAL PAPER No. 14

ÆTHERIS NITROSI.

Inspector's Report.	Results of Analysis.				Remarks, and Opinion of the Chief Analyst
	Nitric Oxide Gas. Vol. per cent.	Ratio, Vol. of Gas to Vol. of Liquid.	Per cent. Ethyl Nitrite.		
J. J. COSTIGAN, INSPECTOR.					
.....	p. c. 170	p. c. 1 7	p. c. 0 62	Below minimum standard..	Adulterated.
... .	146	1 5	0 55	" "	"
.. ..	76	0 8	0 29	"	"
... .	494	4 9	1·79	Up to minimum standard	Genuine.
... .	110	1 1	0 40	Below minimum standard	Adulterated.
J. A. RICKEY, INSPECTOR.					
Sold as spirit of Nitrous ether	74	0 7	0 26	Below minimum standard	Adulterated.
" "	30	0·3	0 11		"
Stock bought from former owner; sold as pure nitrous ether.	916	9 2	3 35	Up to standard.	Genuine.
Vendor buys conc. spt. æth. nit. and dilutes with stronger alcohol; sold as spt. æth. nit.	934	9 3	3 38		
Sold as sept. æth. nit	20	0 2	0·07	Below minimum standard	Adulterated.
JAS. HOGAN, INSPECTOR.					
....	1000	10 0	3 64	Up to standard	Genuine.
.. ..	360	3 6	1 31	Below minimum standard	Adulterated.
....	60	0 6	0 22	. . . . .	.
....	74	0 7	0·26	.	.
....	Trace.	Trace.	Trace.	"	"
H. J. DAGER, INSPECTOR.					
.	180	1 18	1 75	Up to minimum standard	Genuine.
.. ..	10	0 1	0·04	Below .	Adulterated.
....	246	2 5	0 51	" .	"
....	544	5 4	1 97	Up to .	Genuine.
. . . .	Trace.	Trace.	Trace.	Below .	Adulterated.
T. KIDD, INSPECTOR.					
.. ..	196	1 8	0 66	Below minimum standard..	Adulterated.
Sample purchased from a boy who said they made same themselves.	00	0 0	0 0	" " ..	.
....	170	1 7	0 62	" " .	
....	40	0 4	0·15	" " . .	
....	350	3 5	1 28	" "	"
....	560	5 6	2 04	Up to "	Genuine.
... .	380	3 8	1 38	Below "	Adulterated.

BULLETIN No. 167—SPIRITUS

Date of Collection.	Nature of Sample.	No. of Sample.	Nature and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor.
						DISTRICT OF WINDSOR—
1908.						
Oct. 16	Spirit of nitrous ether	34651	F. H. Laing, Windsor.....	3 oz..	25	Albany Chem. Co.....
" 16	" ..	34652	W. A. Pond, Windsor	3 " ..	30	Nat. Drug Co., London.....
" 16	" ..	34654	H. O. Fleming, Windsor..	3 " ..	30	Dom. Drug Co., Hamilton..
" 19	" ..	34657	Jno. P. Jepson, Windsor..	3 " ..	30	J. P. Jepson..... .. ..
" 19	" ..	34658	L. G. Eggelton, London, East.....	3 " ..	30	Not known..... .....
						DISTRICT OF MANITOBA—
Oct. 28	Spirit of nitrous ether	35702	Vrooman & McCullougu, Winnipeg.	3 oz..	25	Not given.
" 28	" ..	35703	Speer-Stevenson Drug Co., Winnipeg.	3 " ..	25	.....
" 28	" ..	35704	E. Nesbitt, Winnipeg	3 " ..	25	E. Nesbitt, Winnipeg, Man.
" 28	" ..	35705	Austin's Drug Store, Winnipeg.	3 " ..	25	W. R. Austin, Winnipeg, Man.
" 28	" ..	35706	Percy F. Braund, Winnipeg	3 " ..	25	The Ball Drug Co., Winnipeg, Man.
						DISTRICT OF CALGARY—
Nov. 26	Spirit of nitrous ether	35476	B. F. South, Medicine Hat	3 oz..	30	Albany Chem. Co., Albany.
" 26	" ..	35477	Higinbotham & Co., Lethbridge.	3 " ..	30	Lyman Sons & Co., Montreal
" 26	" .	35478	J. J. Johnston, Lethbridge	3 " ..	30	" " ..
" 26	" ..	35479	Alberta Drug & Book Co., Lethbridge.	3 " ..	30	" " ..
" 30	" .	35480	C. A. Wallace, Calgary.	3 " ..	30	J. Winer & Co., Hamilton..
						DISTRICT OF VANCOUVER—
Oct. 7	Spirit of nitrous ether	34353	McDuffee Bros. & Co., Vancouver.	3 oz..	40	Not known.
" 7	" ..	34354	Only Drug Store, Vancouver.	3 " ..	15	Evans Sons, Lescher&Webb, Montreal.
" 7	" ..	34355	Central Drug Store, Vancouver.	3 " ..	25	Evans Sons, Lescher & Webb, Liverpool, Eng.
" 7	" ..	34356	Haughtons Drug Store, Vancouver.	3 " ..	30	Henderson Bros., Vancouver
" 7	" ..	34357	R. H. Morrison & Co., Vancouver.	3 " ..	25	Nat. Drug Co., Vancouver.
						DISTRICT OF VICTORIA—
Nov. 30	Spirit of nitrous ether	39252	Wm. Jackson & Co., Victoria, B. C.	3 oz..	35	Baiss Bros. & Stevenson, Ltd., London, E. C.
" 30	" ..	39253	W. S. Terry, Victoria, B.C.	3 " ..	25	Mallinckrodt Chem. Works, St. Louis, U.S.A.
" 30	" ..	39254	D. E. Campbell. "	3 " ..	25	Howard & Sons, Lond., E.C.
" 30	" ..	39255	F. J. Williams. "	3 " ..	40	Vendor. . . ..
" 30	" .	39256	Geo. A. Fraser. "	3 " ..	25	Evans Sons, Lescher & Webb, Liverpool, Eng.

ÆTHERIS NITROSI.

Inspector's Report.	Results of Analysis. Nitric Oxide Gas. Vol. per cent.	Ratio, Vol. of Gas to Vol. of Liquid.	Per cent. of Ethyl Nitrite.		Remarks, and Opinion of the Chief Analyst.
JNO. TALBOT, INSPECTOR.					
	p. c.	p. c.	p. c.		
	704	7·0	2·55	Up to standard	Genuine.
	610	6·1	2·22	"	"
	216	2·2	0·80	Below minuimum standard	Adulterated.
Made from concentrated ether	910	9·1	3·31	Up to standard	Genuine.
	390	3·9	1·42	Below minimum standard	Adulterated.
A. C. LARIVIERE, INSPECTOR.					
	380	3·8	1·38	Below minimum standard	Adulterated.
Sample from a bottle labelled sweet spirits of nitre, Speer-Stevenson Drug Co., Winnipeg, Man.	940	9·4	3·42	Up to standard	Genuine.
	580	5·8	2·11	"	"
	600	6·0	2·18	"	"
	354	3·5	1·28	Below minimum standard	Adulterated.
R. W. FLETCHER, INSPECTOR.					
	780	7·8	2·84	Up to standard	Genuine.
	156	1·6	0·58	Below minimum standard	Adultered.
	920	9·2	3·35	Up to standard	Genuine.
	200	2·0	0·73	Below minimum standard	Adulterated.
	180	1·8	0·66	" "	"
J. F. POWER, INSPECTOR.					
	144	1·4	0·51	Below minimum standard	Adulterated.
	554	5·5	2·00	Up to standard	Genuine.
	350	3·5	1·28	Below minimum standard	Adulterated.
	290	2·9	1·06	" "	"
	586	5·9	2·15	Up to standard	Genuine.
D. O'SULLIVAN, INSPECTOR.					
	340	3·4	1·24	Below minimum standard	Adulterated.
	566	5·6	2·04	Up to standard	Genuine.
	260	2·6	0·95	Below minimum standard	Adulterated.
	1024	10·2	3·71	Up to standard	Genuine.
	512	5·1	1·86	" minimum standard	"

APPENDIX R.

BULLETIN No. 168—TINCTURE OF OPIUM.

Ottawa, December 16, 1908.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I beg to hand you a report upon 31 samples of Tincture of Opium, (commonly known as Laudanum). This is a very important preparation of Opium, and its activity is due to its content in morphine. *Opium* may contain anywhere from 6 to 15 per cent of Morphine (Allen. Commercial Organic Analysis ; Vol. III, part 2, page 333). This great variability of the crude drug makes it necessary that its alcoholic extract should be carefully standardized before being employed in preparing the Tincture. Minute directions are given in the British Pharmacopœia for the valuation of the extract, and for the manufacture of the tincture. The finished tincture should contain 0·75 gramme of morphine (anhydrous), in each 100 cubic centimetres. Since it is practically impossible to keep an alcoholic tincture at absolutely constant strength, under ordinary conditions of pharmacy, the B. P. fixes definite limits (maximum and minimum) for this tincture, requiring that it shall not exceed a morphine strength of 0·80 nor fall below a morphine strength of 0·70 gramme per 100 cubic centimetres.

The Tincture of Opium of the United States Pharmacopœia is standardized with equal care ; but is a much stronger tincture than that of the B. P. It contains 1·20 to 1·25 gramme of crystallizable morphine per 100 cubic centimetres, being therefore stronger than the B. P. Tincture in the ratio of 5 to 3. The average dose of the U. S. P. Tincture is fixed at 8 drops ; while that of the B. P. Tincture is stated to be 5 to 15 drops for repeated administration, or 20 to 30 drops for a single administration.

It is obvious that in all the samples now reported, the intention of the manufacturer has been to meet the B. P. standard.

There is every evidence to show that this very important preparation is of good quality in Canada. Of the 31 samples now reported, 10 are strictly within the limits of B. P. strength, while 6 others are practically within the limits. This interpretation of the results of analysis is made necessary from consideration of the fact that duplicate analyses, made with the greatest care, may differ about 0·020 in terms of morphine percentage so that (unless one could take the mean of a number of independent analyses of the same sample, a condition obviously impossible in this class of work) we must accept a possible error of 0·020, and consider percentages found between 0.680 and 0·820 as complying with the B. P. standard. Even the extremest variations found maximum = 0·940 morphine, minimum = 0·636 morphine, cannot be considered as indicating any dangerous deviation from the B. P. standard. These cases may be due to some carelessness in manufacture, to evaporation of the solvent through too long keeping in imperfectly closed bottles, or to additions of alcohol or water, with a view to making up loss due to evaporation. A strict interpretation of pharmacopœal directions would classify the samples herein reported as follows :—

	Samples.
Within standard limits	16
Above " "	5
Below " "	10
Total	31

For reasons already given I consider that it would be going too far to describe the 15 samples included under the last two categories as adulterated, although a strict interpretation of the results of analysis might warrant this.

The only previous examination of Tincture of Opium made under the Adulteration Act, is reported in Bulletin No. 60, (January, 1899). On that occasion 15 samples were reported, and found to be as follows:—

	Samples.
Morphine content correct	8
" " high	2
" " low	5
Total	15

I beg to recommend the publication of this report as Bulletin No. 168.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

BULLETIN No. 168—TINCTURE OF OPIUM

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. $ cts.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis. Morphine, p.c.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.									
1908.								p. c.	
Oct. 13	Tincture of Opium.	33756	F. J. Harrison, Sydney, N.S.	6 oz..	65	Vendor		0·909	Slightly above official strength, B.P., and not up to U.S.P. strength.
" 13	"	33757	C. J. Sparrow, Sydney, N.S.	6 " ..	60	"		0·800	Standard strength.
DISTRICT OF PRINCE EDWARD ISLAND—T. MOORE, INSPECTOR.									
Oct. 29	Tincture of Opium.	31416	A. W. P. Gourlie, Summerside.	6 oz..	90	Burroughs, Wellcome & Co., London, Eng.		0·709	Standard strength.
" 29	"	31417	W. B. Dyer, Alberta	6 " ..	72	Park, Davis & Co., Walkerville, Ont.		0·812	Practically of B.P. strength.
DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.									
Oct. 21	Tincture of Opium.	29849	E. Clinton Brown, St. John, N.B.	6 oz..	90	Vendor		0·806	Practically of B.P. strength.
Nov. 6	"	29850	Fairweather Bros., Moncton.	6 " ..	60	Lyman, Sons & Co., Montreal.	Sample from original pkge labelled Tr Opii, prepared according to British Pharmacopœia.	0·636	Slightly below B.P. strength.

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

Oct.	21	Tincture of Opium.	34477	F. E. Gilbert, Rivière du Loup.	6 oz.	60	Lyman & Son, Montreal.		0·670	Slightly below B.P. strenthg.
"	21	"	34480	E. O. Cloutier, Rivière du Loup.	6 "	60	W. Brunette & Cie, Quebec.		0·738	Standard strength.
"	21	"	34482	Thos. Kane, Rivière du Loup.	6 "	50	Lyman & Son, Montreal.		0·818	Practically of standard strength.

DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.

Oct.	29	Tincture of Opium.	886	J. E. St. Onge, Valleyfield	6 oz.	1 00	Lyman, Sons & Co., Montreal.		0·710	Standard strength.
"	30	"	887	H. Campeau, Montreal	6 "	60	Lyman, Knox & Co., Montreal.		0·688	Practically of standard strength.

DISTRICT OF MONTREAL—J. J. COSTIGAN—INSPECTOR.

Oct.	5	Tincture of Opium.	32781	Dr. Guy, St. John's, P.Q.	6 oz.	60	Not known		0·664	Slightly below B.P. strength.
"	10	"	32782	J. C. Sutherland, Richmond, P.Q.	6 "	75	Lyman, Sons & Co.		0·660	" "

DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.

Oct.	13	Tincture of Opium.	22706	Clarence H. Lewis, druggist, Ottawa.	6 oz.	60	Burroughs, Wellcome & Co., London, Eng.	Sample made from conc. Tr. Opu by diluting with alcohol to B. P. strength. Sold as Tr. Opu B. P.	0·681	Practically of standard strength.
"	13	"	22707	A. R. Farley, druggist, Hull, P.Q.	6 "	60	Vendor	Sold as Tr. Opu B. P.	0·902	Slightly above B.P. strength, and not up to U.S.P. standard.

DISTRICT OF KINGSTON—JAS. HOGAN, INSPECTOR.

Nov.	3	Tincture of Opium.	36081	O. G. Johns, Cobourg	6 oz.	50	Vendor		0·641	Slightly below B.P. strength.
"	3	"	36082	A. J. Gould, Cobourg	6 "	50	"		0·767	Standard strength.

BULLETIN No. 168—TINCTURE OF OPIUM.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. $ cts.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis. Morphine, p.c.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.									
Oct. 23	Tincture of Opium.	35199	W. A. Howell, Hamilton.	6 oz..	90	Vendor	Labelled Laudanum.	0·940	Slightly above B.P. strength, and not up to U.S.P.
" 27	"	35200	W. H. Andrew, Toronto..	6 " ..	60	Lyman Bros. & Co., Ltd., Toronto.	"	0·641	Slightly below B.P. strength.
DISTRICT OF LONDON—T. KIDD, INSPECTOR, AND J. TALBOT, ACTING INSPECTOR.									
Oct. 5	Tincture of Opium.	30989	H. C. Dunlop, Goderich..	6 oz..	1 00	Nat. Drug Co., Hamilton, Ont.		0·703	Standard strength.
Nov. 15	"	34698	John D. McKee, Guelph..	6 " ..	1 20	Vendor	Sample made from conc. Tr. Opii purchased from Burroughs, Wellcome & Co.	0·636	Slightly below B.P. strength.
DISTRICT OF WINDSOR—J. TALBOT, INSPECTOR.									
Oct. 16	Tincture of Opium.	34656	W. A. Pond, Windsor, Ont.	6 oz..	75	Dom. Drug Co., Hamilton.		0·728	Standard strength.
" 19	"	34659	Dr. W. L. Smith, London, East.	6 " ..	65	Nat. Drug Co., London		0·717	"

DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.

Oct.	28	Tincture of Opium.	35707	F. Whaley, Winnipeg.	6 oz.	60	Lyman, Sons & Co., Montreal.	Labelled Tr. Opii, Poison.		0·670	Slightly below B.P. strength.
"	28	"	35708	D. W. Bradshaw, Winnipeg.	6 "	60	Vendor			0·781	Standard strength.

DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.

Nov.	24	Tincture of Opium.	35481	E. M. Cawker, Medicine Hat.	6 oz.	90	Lyman, Sons & Co., Montreal.			0·664	Slightly below B.P. strength.
"	24	"	35482	C. T. Pringle, Medicine Hat.	6 oz.	90	"			0·664	" "

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

Oct.	8	Tincture of Opium.	34358	Post Office Drug Store, Vancouver.	6 oz.	1 50	Nat. Drug Co., Vancouver.			0·760	Standard strength.
"	8	"	34359	Henderson's Drug Store, Vancouver.	6 "	1 00	Henderson Bros., Vancouver.			0·821	Practically of standard strength.

DISTRICT OF VICTORIA—D. O'SULLIVAN, INSPECTOR.

Nov.	30	Tincture of Opium.	39257	Dean & Hiscocks.	6 oz.	1 00	Henderson Bros., Victoria.			0·880	Slightly above B.P. strength; not up to U.S.P.
"	30	"	39258	Hall & Co.	6 "	75	Vendors			0·852	" "

APPENDIX S.

BULLETIN No. 169—CIDER.

OTTAWA, December 18, 1908

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR,—I beg to hand you a report upon 62 samples purchased as cider, in July and August of the present year. The samples represent this article as sold throughout Canada, with exception of the London district, in which no collection was made.

"Cider is a beverage produced by the fermentation of the juice of apples." (Thorpe's Dictionary of App. Chemistry, Vol. I, p. 560).

The following definition for cider is contained in a draft bill for a Uniform Food Law proposed for the United States. (Am. Food Journal, Dec., 1908):—'Cider, hard cider, is the product made by the normal alcoholic fermentation of apple juice, and the usual cellar treatment, and contains not more than seven (7) per cent by volume of alcohol* and, in one hundred (100) cubic centimeters (20°C.), of the cider, not less than two (2) grams nor more than twelve (12) grams of solids, not more than eight (8) grams of sugars, in terms of reducing sugars, and not less than twenty (20) centigrams nor more than forty (40) centigrams of cider ash.

'Sparkling cider, champagne cider, is cider in which the after-part of the fermentation is completed in closed containers, with or without the addition of cider or sugar liquor, and contains, in one hundred (100) cubic centimeters (20°C.), not less than twenty (20) centigrams of cider ash.

It is evident that in order to the intelligent interpretation of the results of analysis of cider, we must study the normal juice of apples.

The subject was first undertaken by this department in 1904; and in Bulletin No. 94 of that year, will be found the results of examination of 41 samples of commercial cider. In his prefatory remarks, the late Chief Analyst mentions having examined 5 samples of fresh apple juice, obtained at Lambeth, Ont. The specific gravity ranged from 1·0464 to 1·0485 corresponding to 11·37 and 11·88 per cent of dissolved solids.*

Two additional samples examined in 1903, gave gravities of 1·0546 and 1·0573, corresponding to 13·38 and 14·04 per cent of solids in solution. It is quite to be ex-

* Equivalent to 12·30 per cent of proof spirit, or 5·62 per cent of alcohol by weight.

* The solids are calculated from the specific gravity of the non-alcoholic juice by the following formula:—Solids=245 (S—1) where "S" is the specific gravity. (C. A. Browne, Jour. Am. Ch. Soc., 1901, p. 275).

pected that different varieties of apples should yield juice of different character. In this connection the following results are of interest. They are quoted from Bulletin 88 of the Bureau of Chemistry, Washington (published in 1904).

APPLE JUICE.‡

—	Sp. Grav.	Solids.	Sugars.	Acidity.
Mean of 10 summer varieties	1·049	12·33	9·53	0·33
" 13 autumn "	1·054	13·76	10·66	0·36
" 19 winter "	1·056	14·29	11·43	0·41

C. A. Brown (Jour. Am. Chem. Soc., 1901, 871) gives the following composition of apple juices :—

	Sp. Grav.	Solids	Sugar	Acidity
Summer apples (5 analyses)	1·050	12·29	9·99	0·72
Winter apples (1 analyses)	1·057	13·96	11·97	0·43

'Second pressings,' made by wetting apple pomace with water, and repressing gave results as below :—

Sp. Grav.	Solids	Sugar
1·038	9·14	8·36

The volume of liquid obtained in this second pressing is not given, but it is evident that a considerable amount of soluble matter, chiefly sugars, remains in the pomace.

H. C. Gore in Bulletin 118 (1908) of the Bureau of Chemistry, Washington, gives the following results on apple juices :—

Variety of Apple.	Sp. Grav.	Solids.	Sugar.	Acidity.
Yellow Newtown	1·0504	12·35	11·58	0·53
Ralls	1·0564	12·82	12·14	0·46
Ben Davis	1·0492	12·05	10·05	0·48
Winesap	1·0475	11·61	10·02	0·46
Tolman	1·0638	15·63	13·95	0·13
Northern Spy	1·0608	14·90	12·82	0·61
Baldwin	1·0584	14·31	12·22	0·63
Roxbury	1·0688	16·86	13·81	0·70
Shockley	1·0457	11·20	10·01	0·29
Gilpin	1·0547	13·41	11·50	0·38
Kentucky Red	1·0608	14·90	12·66	0·72

From these studies it appears that true apple juice may vary as follows :—

Specific gravity	from	1·0457	to	1·0688
Dissolved solids	"	11·20	"	16·86 p.c.
Sugars	"	9·53	"	13·95 "
Acidity	"	0·13	"	0·72 "

Gore records experiments in the sterilization of apple juice. Perfect success was not obtained by heating to 65° C. (= 149° F) although the acid varieties showed fair keeping quality. Sterilized at 65° to 70° C. (= 149° F. to 158° F.) the juice kept perfectly in wooden containers for six months.

‡ The acidity is stated in terms of sulphuric acid ; and the solids are obtained by actual drying. The formula just quoted will give 12·01, 13·23 and 13·72.

The following specifications for apple juice, apple must or sweet cider are included in a draft bill for a Uniform Food Law proposed for the United States. (Am. Food Journal, Dec., 1908):—

'Apple juice, apple must, sweet cider, is the fresh fruit juice obtained from apples, the fruit of Pirus malus, has a specific gravity (20° C.) not less than 1·0415 nor greater than 1·0690; and contains in one hundred (100) cubic centimeters (20° C.) not less than six (6) grams, and not more that twenty (20) grams of total sugars, in terms of reducing sugars, not less than twenty-four (24) centigrams nor more than sixty (60) centigrams of apple ash, which contains not less than fifty (50) per cent of potassium carbonate.'

The following summary of results on the sterilization of apple juice are so important, that I think it well to reproduce them from Bulletin 118 of the Bureau of Chemistry, p. 22:

SUMMARY.

'(1) The experiments described show conclusively that it is possible to sterilize apple juice in wooden containers, the product remaining sound for at least six months under actual observation. The precautions which must be taken to insure this are as follows: First paraffin the containers on the outside, then sterilize, and fill with juices heated to between 149° and 158° F. (65° to 70° C.); seal, taking measures to relieve the vacuum produced by the contraction of the juice on cooling by filtering the air through cotton. Twenty-four 10-gallon kegs successfully stood a severe shipping test, showing no loss due to fermentation of the juice. The juice so prepared, was found to be palatable, and acceptable as a summer drink.

(2) It is demonstrated that apple juice can be successfully sterilized in tin containers, using the type of tin can sealed by the mechanical process, excluding all metals from contact with the juice except the tin of the can. Where lacquered cans are used the contamination with tin was reduced about one-half. Apple juices were canned and sterilized by heating in a hot water bath, up to the temperature of 149° F. (65° C.) for a half hour, and then were allowed to cool. These juices possessed only a slight cooked taste due to the heating and retained much of their distinctive apple flavour. It was found that from finely flavoured apple juice a first-class sterile product' could be made, while a poorly flavoured apple juice yielded an inferior product. The process conditions mentioned were not quite thorough enough to sterilize all of the varieties canned. A slight increase in the temperature or time of processing, or both, should be made, the temperature not to exceed 70° C. (158° F.) in any case.

(3) The best treatment for sterilizing in glass was found to consist in heating for one hour at 149° F. or for one-half hour at 158° F. Heating for one hour at 158° did not produce marked deterioration in flavour, a half hour being allowed in all cases for the juice to obtain the temperature of the water bath.

(4) It was shown that the great bulk of the insoluble material naturally contained in apple juice can be removed by means of a milk separator.

(5) It is possible to carbonate the juice slightly before canning or bottling, thus adding a sparkle to the product. A flavour foreign to fresh apple juice is also added however, and uncarbonated sterile juice will resemble fresh apple juice more closely. Carbonating by the addition of water charged with carbon dioxide was considered by some to injure the flavour, lessening the characteristic fruit flavour by dilution. In the opinion of others a heavy, rich juice was improved both by the charge of carbon dioxide and by the consequent dilution. Experiments indicated that the danger of contamination by mold growths was lessened by maintaining an atmosphere of carbon dioxide above the surface of the juice after opening.

(6) It is demonstrated that benzoate of soda in quantities varying from 0·03 to 0·15 per cent (0·1 per cent being the maximum temporarily permitted by the food regulations) while it checks the alcoholic fermentation, allows other organisms to develop (notably the acetic acid ferment), whereby the palatability of the product as a beverage is destroyed."

Apple juice, like other fruit juices, may undergo the alcoholic fermentation, the dissolved sugar producing approximately half its weight of alcohol. The fermented

cider *(apfel wein* of Germany) bears the same relation to apple juice, which wine bears to the juice of the grape. This fermented cider, sometimes known as 'hard cider,' is often an unattractive beverage, owing to the great number of differing fermentations which occur in it. When, however, a selected and desirable yeast is used to induce a dominant fermentation, the product may be a very desirable drink. This phase of the question has been carefully studied by Alwood, Davidson and Moncure, of the Department of Agriculture of the United States, and the results of their investigations are published in Bulletin 88 of the Bureau of Chemistry.

When the fermentation is incomplete, the product is known as champagne cider and the authors named find that unless preservatives are used, it is difficult to bottle and hold a liquid containing much above 1·5 or 2 per cent of sugar. (U.S. Bulletin 98, p. 42).

The following results of analysis of Fermented Cider, prepared under expert supervision, are interesting and important. (U. S. Bull. 88, p. 41.)

	Specific Gravity.	Total Solids.	Sugar.	Acidity.	Alcohol.	
					Weight.	Proof Spirit.
	1 004	2 60	0 98	0 35	4 43	9 72
	1 003	2 24	0 20	0 48	5 20	11 35
	0 999	1 79	trace	0 33	5·66	12 40
	1 004	2 48	0 64	0 43	5 28	11 50
	1 003	2 64	0 90	0 39	6 00	13 11
	0 999	1 69	trace	0 37	6 36	14 88
	0 998	1 73	"	0 37	6 20	13 56
	1 003	1 76	"	0 34	5·37	11 76
	1 011	3 84	2 11	0 54	4 23	9·30
	1 001	1 83	0 35	0 35	5 16	11 25
	1 005	2 39	0 75	0 ·2	4·76	10 40
	1 001	1 98	0 35	0 39	5 37	11 76
	1 000	1 59	trace	0 35	5 00	10 94
	1 003	2·17	0·38	0 41	4 66	10 24
	1 001	1 93	0·27	0 40	5·09	11·10
	1 005	2 73	1 41	0 38	5 48	11·90
Average	1 002	2 21	0 52	0 39	5 26	11·50

Few fermented fruit juices possess distinctive names in English. The fermented juice of the grape is known as *Wine*, and in the cases of other fruits, it is usual to speak of the fermented juice as a special kind of wine. Thus we have currant wine, sherry wine, gooseberry wine, elderberry wine, &c. The fermented juices of the apple and the pear are exceptional inasmuch as they possess, distinctive names, Cider and Perry, respectively. The fact is of course due to the extensive use of these beverages in English speaking countries. 'France is easily the leading cider country of the world, followed by Germany, England, Switzerland, the United States, Canada, Austria, Grand Duchy of Luxembourg and Spain, in order of importance.... ... The production of cider in France, in 1900, exceeded 647,000,000 gallons.... ... No definite statistics are available as to the production of cider in England, but the Hon. C. W. Radcliffe Cooke, in a recent article in the Nineteenth Century, draws the conclusion that the total annual product is not less than 100,000,000 gallons, having a maximum value of nearly $15,000,000?, W. B. Alwood, Bull. 71, (1903) Bureau of Chemistry, Washington.

The manufacture of cider has not received the attention which it deserves; and this is especially true of Canada. The apple crop of Canada is stated as 18,626,186 bushels, for 1901. (Can. Year Book, 1907). It is capable of great increase; and the manufacture of cider, under proper conditions, may become a great industry in Canada. That the world's market for cider is not fully supplied appears from the fact that dried apples, cores and parings are regularly shipped from United States to France, to be used

in the manufacture of a low quality of cider, in spite of the fact that France is itself the largest apple producing country of the world.

As in every other department of production for foreign markets, it is necessary that intelligence and skill should guide the hand of industry. Really excellent cider cannot be made from refuse apples, treated in the haphazard fashion to be seen on too many fruit farms in Canada. This is not the place to describe cider manufacture; but I shall take the opportunity of referring any one interested to Bulletins (Nos. 71, 88 and 118) of the Bureau of Chemistry, Washington, D. C.

Fifteen samples reported in this collection contain alcohol in amount less than two and a half ($2\frac{1}{2}$) per cent of proof spirit, and are therefore to be regarded as temperance beverages. (Legal standard for the province of Ontario). These samples are the following:—

Number	Sold as	Made by	Proof Spirit.	Total Solids.	——
			p. c.	p. c.	
31304	Cider	No manuf's label on the bottle.	2·48	6·66	Salicylic acid, dyed.
26476	Cidre champagne	Els. Fortier & Cie, Quebec	None	10·95	
26499	Apple juice (Duffy's)	Am. Fruit Prod. Co., Rochester	"	12·59	
163	Cidre de pommes	Nap. Berard, Sorel	"	6·78	Artifical flavour.
32621	Apple nectar	Chas. Gurd & Co., Montreal	"	9·82	
32623	Champagne cider	R. Millar, Montreal	"	4·14	
32624	Apple nectar	Rowan Bros. & Co., Montreal.	"	7·25	
32625	Champagne cider	Allens, Montreal	"	5·56	
35269	Cider		"	2·37	
35153	"		"	6·07	
33178	Fruit champagne, orange flavour.	Blackwoods, Ltd., Winnipeg	0·93	8·40	Salicylle acid, dyed.
33181	Orange cider	E. L. Drewry, Winnipeg	None	15·24	" "
34956	Boiled cider	Brady Houston Co., Victoria	0·81	48·16	
34963	"	" "	0·81	48·90	
34967	"	" "	1·16	48·63	

It is quite apparent that none of these articles answer to the definition of cider; nor should they be sold under that name. None of them are made by the normal alcoholic fermentation of apple juice.' They are correctly sold as 'soft drinks,' non-alcoholic or temperance drinks, or by any truly descriptive name which does not imply that they are cider. This name should be carefully protected, and correctly applied, according to the usage of the great cider-making countries of the world. Eleven of these samples are distinctly sold as cider, a fact which implies either that a real cider industry does not exist in Canada, or that no one is looking after its interests. Most of these beverages are artificial, being made from sugar, water, flavouring esters and colouring matters. No. 26499 (Duffy's Apple Juice) is the only one which bears evidence of being a bona fide apple product and true to name. Nos. 34956, 34963 and 34967 constitute a class by themselves, and cannot be regarded as cider proper, nor even as normal apple juice.

The subjoined table contains the more important analytical numbers found for the remaining samples (45 samples) of this collection. The last column is an attempt to calculate the original solids of the apple juice: and assumes that the alcohol found in the cider represents twice its weight of sugars in the juice. This hypothesis may be at fault in several ways, as by loss of alcohol through evaporation, or conversion into acetic acid, &c.: but doubtless possesses a considerable interpretative value.

Number.	Proof Spirit.	Solids.	Ash.	Original Solids of Juice.	
	p. c.	p. c.	p. c.	p. c.	
33526	6·84	8·72	0·15	14·96	
33527	7·23	8·28	0·11	14·86	
33528	7·36	8·18	0·27	14·88	
33529	3·85	7·54	0·02	11·04	
33530	9·86	2·08	0·22	11·08	
31301	5·49	1·57	0·16	6·57	
31302	7·87	1·49	0·19	8·67	
31303	6·58	8·94	0·07	14·94	
31305	3·03	14·38	0·09	17·17	Sold as orange cider; no label; contains salicylic acid.
29733	5·86	9·85	0·13	15·19	
29734	11·21	3·80	0·30	14·04	
29735	6·47	6·10	0·14	11·98	
29736	6·34	8·57	0·18	14·25	
29737	6·22	7·37	0·25	13·03	Contains salicylic acid.
26492	9·72	4·92	0·32	13·80	Benzoic ester.
26500	9·86	6·63	0·24	15·63	
34101	10·54	2·86	0·29	12·18	Contains salicylic acid.
160	10·26	6·96	0·25	16·34	" acetic esters.
161	10·67	4·55	0·16	14·29	
162	9·72	6·96	0·28	15·84	Sweet apple cider.
32622	9·04	2·69	0·11	10·93	
22653	6·58	8·33	0·18	14·33	
22654	6·10	4·28	0·27	9·84	Contains benzoic esters.
35265	7·10	4·24	0·17	10·72	Salicylic acid.
35266	10·40	6·83	0·37	16·33	
35267	10·81	4·92	0·33	14·80	
35268	10·81	2·86	0·20	12·74	
35149	11·49	5·51	0·23	16·01	
35150	9·04	4·95	0·26	13·97	Trace of salicylic acid.
35151	11·08	5·73	0·25	15·85	
35152	3·03	6·22	0·03	8·96	Contains salicylic acid.
34587	4·40	8·79	0·13	12·79	
33177	9·58	6·54	0·20	15·28	
33180	10·54	5·34	0·28	14·96	
35311	11·76	2·18	0·15	12·92	
35312	8·38	3·31	0·19	10·95	" "
35314	9·45	6·63	0·13	15·25	
35315	9·01	1·35	0·19	9·59	
34305	3·58	6·63	0·08	9·87	
31306	11·76	4·82	0·22	15·56	
34307	3·58	10·48	0·08	13·72	
34308	10·13	4·65	0·16	13·89	
34309	3·71	5·02	0·06	7·40	Salicylic acid.
34971	7·10	15·57	0·16	22·05	
34973	5·98	13·64	0·16	19·08	
Standard maxima and minima	12·30 ?	12·00 2·00	0·40 0·20		

It has been already shown that the solids in apple juice, may vary from 11·20 to 16·86 per cent. Say from 11 to 17 per cent. Much suspicion must therefore attach to the following numbers, viz.: 31301, 31302, 22654, 35152, 35315, 34305 and 34309, on account of the low solids: and to 34971 and 34973, on account of the large amount of dissolved solid matters.

So much work has yet to be done upon cider before a definite pronouncement can be made as to its specific character and the extent of its variations, that I consider it best to leave the matter of final judgment in abeyance for the present; and beg to recommend that this report be published as Bulletin No. 169.

I have the honour to be, sir,

Your obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF NOVA SCOTIA—
1908.						
Aug. 5	Cider	33526	J. W. Livingstone, Windsor N.S.	3 pts.	60	Annapolis Valley Cider Co., Bridgetown, N.S.
" 6	"	33527	J. S. Creed, Halifax, N.S.	3 "	30	" "
" 6	"	33528	J. A. Crouse, Halifax, N.S.	3 "	30	Canadian Beverages' Co., Amherst, N.S.
" 6	"	33529	Jas. Roul, Halifax, N.S.	3 "	10	Vendor
" 8	"	33530	P. Connors, Halifax, N.S.	3 "	20	Annapolis Valley Cider Co., Bridgetown, N.S.
						DISTRICT OF PRINCE EDWARD ISLAND—
July 20	Cider	31301	James Kelly, Charlottetown.	3 pts.	20	Lennard Grant, agent, Charlottetown.
" 24	"	31302	P. A. Smith, Charlottetown.	3 "	20	Mills & Offices, Bridgetown, N.S.
" 30	"	31303	T. G. Jameson, Charlottetown.	3 "	50	Annapolis Valley Cider Co., Bridgetown, N.S.
Aug. 3	"	31304	J. A. Hynes, Kensington.	3 "	35	Canadian Beverage Co., Amherst, N.S.
" 4	"	31305	J. M. Noonan, Summerside.	3 "	30	G. E. Barbour Co., Ltd., St. John, N.B.
						DISTRICT OF NEW BRUNSWICK—
July 16	Cider	29733	W. A. Simonds, agent, 89 Union St., St. John, N.B.	3 bots	30	Annapolis Valley Cider Co., Ltd., Bridgetown, N.S.
" 23	" (bulk)	29734	F. E. Williams Co., Ltd., St. John, N.B.	3 "	20	Belleville Vinegar and Cider Co., Belleville, Ont., Can.
" 25	" (bottled)	29735	Baird & Peters, St. John, N.B.	3 "	37	Annapolis Valley Cider Co., Ltd., Bridgetown, N.S.
Aug. 4	" "	29736	W. B. McKay & Co., Sussex, N.B.	3 "	60	" "
" 5	" (bulk)	29737	A. H. Hodge, Moncton, N.B.	3 pts.	15	Canadian Beverages' Co., Amherst, N.S.

S = Sp. grav. of dealcoholized residue solids p. c. = 215 (S −1), U.S. Bureau of Chemistry Bull. 118

CIDER.

Inspector's Report.	Specific Gravity of Cider.	Specific Gravity of Distillate.	Specific Gravity of Residue.	Results of Analysis.								Remarks and Opinion of the Chief Analyst.
				Alcohol as proof spirit. Volume.	Total Solids.*	Ash.	Acidity calculated as malic acid grm. per 100 c.c.	Polarization		Cane Sugar by Clerget.	Action with Fuller's Earth.	
								Direct.	Invert.			
R. J. WAUGH, INSPECTOR.												
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
. .	1·0302	0·9945	1·0356	6·84	8·72	0·15	0·72	— 8·5	— 8·8	None.	Colour light	
..	1·0283	0·9942	1·0338	7·23	8·28	0·11	0·35	— 7·0	— 7·6	„	„	
Labelled Sparkling Anti Rheumatic.	1·0281	0·9941	1·0334	7·36	8·18	0·27	0·82	— 16·8	— 17·0	„	„	
Sold as Apple Cider taken from bulk.	1·0285	0·9969	1·0312	3·85	7·51	0·02	0·52	— 0·2	— 0·2	„		
Sample drawn from bulk.	1·0010	0·9922	1·0085	9·86	2·08	0·22	0·59	— 1·0	— 1·1	„		
T. MOORE, INSPECTOR.												
.. ..	1·0019	0·9956	1·0064	5·49	1·57	0·16	0·44	— 1·5	— 1·5	None	Colour light	
.....	0·9998	0·9937	1·0061	7·87	1·49	0·19	0·36	— 0·2	— 0·2	„	„	
Land of Evangeline Brand Pure Cider.	1·0317	0·9947	1·0369	6·58	8·94	0·07	0·63	— 8·8	— 8·9	„	No colour removed	
.....	1·0252	0·9·79	1·0272	2·48	6·66	0·13	0·46	— 6·0	— 6·1	„	Colour light	Contains salicylic acid. Dyed with orange aniline dye
This sample was sold as Orange Cider	1·0356	0·9975	1·0587	3·03	14·38	0·00	*0·97	12·5	13·9	„	95 p.c. colour removed	Orange cider Contains salicylic acid.
J. C. FERGUSON, INSPECTOR.												
Labelled Land of Evangeline Brand. Pure Cider.	1·0356	0·9953	1·0402	5·86	9·85	0·13	0·52	— 7·8	— 7·9	None	Light colour	
Last year's stock. Purity & quality not guaranteed.	1·0063	0·9912	1·0155	11·21	3·80	0·30	0·75	+ 0·2	— 0·2	„	„	
Labelled Land of Evangeline Brand. Pure Cider.	1·0298	0·9948	1·0349	6·37	6·10	0·14	0·45	— 6·8	— 7·0	„	Colour light	
„ .	1·0314	0·9949	1·0350	6·34	8·67	0·18	0·46	8·0	— 8·6	0·10	„	
Last year's product, would not guarantee purity or quality.	1·0294	0·9950	1·0301	6·22	7·37	0·25	2·58	— 4·5	— 4·6	None	„	Volatile acid as acetic = 2·00. Contains salicylic acid

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* Calculated as citric.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF QUEBEC—
1908. July 16	Cidre Champagne.	26476	Juste Jean, Baie St. Paul...	3 bots..	39	Elzear Fortier, Quebec.....
" 24	Cider.....	26492	Joseph Falardeau, 271 Rue St. Joseph, Quebec.	3 pts...	15	Langlois & Paradis, Quebec.
" 27	Duffys Apple Juice.	26499	Myrand & Pouilot, 70 Rue de la Couronne, Quebec.	3 bots..	75	Laporte & Martin, Montreal.
" 27	Apple Cider....	26500	Charle. S. Riverin, 55 Rue de la Couronne, Quebec.	3 " ..	29	C. T. Oregan, Palace St., Quebec.
" 27	Cidre de Pomme	34401	R. Grenier, 128 Rue du Pont, Quebec.	3 " ..	25	Langlois & Paradis, Quebec.
						DISTRICT OF ST. HYACINTHE—
July 29	Apple Cider....	160	J. H. Rocheleau, St. Pie, Bagot.	3 bots.	45	F. Kinsella, Montreal.....
Aug. 3	"	161	J. W. Turcotte, Drummondville.	3 " ..	45	Not known..... .....
" 5	"	162	J. H. Bryant, Sherbrooke...	3 " ..	free	S. Allan, Norwich, Ont.....
" 11	"	163	P. Paul, Sorel.....	5 " ..	25	N. Berard, Sorel ... .
						DISTRICT OF MONTREAL—
July 21	Cider	32621	Chas. Gurd & Co., Ltd., Jurors St., Montreal.	3 bots ..	30	Vendors.....
" 21	"	32622	Robert Miller, 168 St. Maurice St., Montreal.	3 " ..	30	Vendor.....
" 21	"	32623	" " ..	3 " ..	30	" ....

* S=Sp. grav. of dealcoholized residue solids p. c. = 245 (S—1), U.S. Bureau of Chemistry, Bull. 118

SESSIONAL PAPER No. 14

CIDER.

Inspector's Report.	Specific Gravity of Cider.	Specific Gravity of Distillate.	Specific Gravity of Residue.	Results of Analysis. Alcohol as proof spirit—Volume.	Total Solids.	Ash.	Acidity calculated as malic acid grm. per 100 cc.	Polarization Direct.	Polarization Invert.	Cane Sugar by Clerget.	Action with Fuller's Earth.	Remarks and Opinion of the Chief Analyst.
E. BELAND, INSPECTOR.												
.....	1·0441	0·9998	1·0447	None.	10·95	0·01	0·21	— 0·9	—10·4	1·84	90 p.c. colour removed	
.....	1·0125	0·9923	1·0201	9·72	4·92	0·32	0·75	+ 4·2	+ 4·2	None	No colour removed	Contains benzoic ester.
.....	1·0512	0·9998	1·0514	None.	12·59	0·19	0·71	—18·2	—18·2	1·04	Colour light	
.....	1·0196	0·9922	1·0271	9·86	6·63	0·24	0·44	—15·0	—15·4	None	"	
.....	1·0034	0·9917	1·0117	10·54	2·86	0·29	0·81	+ 1·0	— 0·2	0·22	No colour removed	Contains salicylic acid.
J. C. ROULEAU, INSPECTOR.												
Jubilee Apple Cider.	1·0205	0·9919	1·0284	10·26	6·96	0·25	0·53	—17·6	—17·8	None	Light colour	Smells strongly of acetic ester
Pure Apple Cider.	1·0106	0·9916	1·0186	10·67	4·55	0·16	0·53	— 7·0	— 7·2	"	"	
Labelled Sweet Apple Cider, Mfg. by S. Allen, Norwich, Ont., & bottled by J. H. Bryant, Sherbrooke, Que.	1·0205	0·9923	1·0284	9·72	6·96	0·28	0·51	—15·8	—15·9	"	No colour removed	
Labelled Nap. Berard, cidre de pommes, Sorel, Que.	1·0275	0·9998	1·0277	None.	6·78	0·00	0·39	— 2·5	— 5·5	0·56	"	Odor of acetic ester.
J. J. COSTIGAN, INSPECTOR.												
Labelled "Sparkling Apple Nectar."	1·0400	1·0000	1·0401	None.	9·82	0·00	0·23	— 9·4	— 9·8	None.	95 p.c. colour removed	
Labell'd "Genuine Sparkling Apple Cider."	1·0037	0·9928	1·0110	9·04	2·69	0·11	0·40	— 4·0	— 4·4	"	Colour light	
Labelled "Royal Windsor Champagne Cider."	1·0168	0·9998	1·0169	None.	4·14	0·01	0·22	— 1·2	— 3·2	0·37	95 p.c. colour removed	

page 12.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF MONTREAL—
1908. July 22	Cider	32624	Rowan Bros. & Co., Ltd., Vallee St., Montreal.	3 bots.	30	Vendors
" 22	"	32625	Robt. Allan, Dorchester St., Montreal.	3 "	20	Vendor
						DISTRICT OF OTTAWA—
July 27	Cider	22653	Bate & Co., Sparks St., Ottawa.	3 bots.	35	Annapolis Valley Cider Co., Bridgetown, N.S.
Aug. 12	"	22654	Chevrier Bros., Cornwall, Ont.	1 qt.	15	Allan, Norwich, Ont.
						DISTRICT OF KINGSTON—
July 20	Cider	35265	James Redden, Princess St., Kingston.	1 qt.	15	Whitby Fruit Vinegar Co., Whitby, Ont.
" 22	"	35266	Wallbridge & Clarke, Bridge St., Belleville.	3 bots.	75	S. Allen, Norwich
" 22	"	35267	Belleville Fruit Vinegar, Belleville.	3 "	10	Belleville Fruit Vinegar Co., Belleville.
" 22	"	35268	S. Fourt, Port Hope	1 qt.	15	S. Allen, Norwich.
" 23	"	35269	Avid Knox, Queen St., Peterboro.	1 "	10	Vendor
						DISTRICT OF TORONTO—
Aug. 5	Refined Cider	35149	Opera Quick Lunch Counter, R. J. Gill, Prop., Hamilton.	3 pts.	15	S. Allen, Norwich
" 8	Drinking "	35150	Whitby Fruit Vinegar Co., Whitby.	3 "	15	Vendors

* S = Sp. grav. of dealcoholized residue. Solids p. c. =

SESSIONAL PAPER No. 14

CIDER.

Inspector's Report.	Specific Gravity of Cider.	Specific Gravity of Distillate.	Specific Gravity of Residue.	Results of Analysis.								Remarks and Opinion of the Chief Analyst.
				Alcohol as proof spirit—Volume.	Total Solids.	Ash.	Acidity calculated as malic acid gms. per 100 cc.	Polarization		Cane Sugar by Clerget.	Action with Fuller's Earth.	
								Direct.	Invert.			
J. J. COSTIGAN, INSPECTOR—*Con.*												
Labelled "Sparkling flavoured Apple Nectar."	1·0295	0·9996	1·0296	None.	7·25	0·00	0·14	— 0·4	— 5·4	0·93	90 p.c. colour removed	
Labelled "Sparkling Champagne Cider."	1·0225	0·9999	1·0227	"	5·56	0·01	0·20	+ 3·0	— 5·4	1·57	"	
J. A. RICKEY, INSPECTOR.												
Labelled "Land of Evangeline brand, Pure Cider."	1·0299	0·9947	1·0340	6·58	8·33	0·18	0·48	— 7·5	— 7·9	None	Light colour	
Taken from bulk. Sold as Apple Cider.	1·0126	0·9951	1·0175	6·10	1·28	0·27	0·80	+ 4·5	+ 4·5	"	No colour removed	Contains benzoic ester.
JAS. HOGAN, INSPECTOR.												
.....	1·0117	0·9943	1·0173	7·10	4·21	0·17	1·96	— 3·5	— 3·8	None	Light colour	Volatile acid as acetic = 1·17. Contains salicylic acid.
.....	1·0200	0·9918	1·0279	10·40	6·83	0·37	0·46	—12·9	— 13·1	"	"	
.....	1·0116	0·9915	1·0201	10·81	1·92	0·33	0·93	+ 1·5	— 0·2	0·32	.....	
.....	1·0025	0·9908	1·0117	10·81	2·86	0·20	0·69	— 2·2	— 2·4	None.	.....	
Two years in stock.	1·0091	0·9998	1·0097	None.	2·37	0·43	1·01	— 0·2	— 0·5	"	No colour removed	Volatile acid as acetic = 0·72.
H. J. DAGER, INSPECTOR.												
.....	1·0138	0·9910	1·0225	11·49	5·51	0·23	0·67	— 9·8	—10·4	0·10	No colour removed	
Vendor said sample was cured for drinking purposes, but had since gone hard; was using it for vinegar stock; had not sold any for drinking purposes for two months.	1·0136	0·9928	1·0202	9·04	4·95	0·26	0·56	+ 4·5	+ 4·5	None.	Colour light	Trace of salicylic acid.

245 (S-1) U. S. Bureau of Chemistry. Bull. 118, page 12.

BULLETIN No. 169—

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF TORONTO—			
1908.						
Aug. 12	Refined Cider ..	35151	Kemp Beverage Co., Toronto.	3 pts...	15	S. Allen, Norwich ....
" 13	Apple " ..	35152	S. Patterson & Co., 318 Berkley St., Toronto.	3 " ..	15	Vendors ....
" 14	" " ..	35153	John Lorgo, 252 Queen St., Toronto.	3 " ..	15	S. Patterson & Co., 318 Berkley St., Toronto.
			DISTRICT OF WINDSOR—			
Aug. 11	Cider	34587	A. Laddy, London	3 pts..	15	S. Allen, Norwich.....
			DISTRICT OF MANITOBA—			
July 21	Cider	33177	Blackwood's, Ltd., Winnipeg.	3 bots..	30	Vendors ....
" 21	"	33178	" " ..	3 " ..	25	" .....
" 22	"	33179	Pelissiers & Sons, Winnipeg.	3 pts...	30	" ....
" 23	"	33180	E. L. Drewry, Winnipeg....	3 " ..	Nil	MacNab & Roberts, Winnipeg.
" 24	"	33181	Ed. Foran, Notre Dame Av., Winnipeg.	3 bots..	45	E. L. Drewry, Winnipeg ...

* S=Sp. grav. of dealcoholized residue. Solids p.c.=245 (S—1) U.S. Bureau of Chemistry. Bull.

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CIDER.

Inspector's Report.	Results of Analysis.											Remarks and Opinion of the Chief Analyst.
	Specific Gravity of Cider.	Specific Gravity of Distillate.	Specific Gravity of Residue.	Alcohol as proof spirit—Volume.	Total Solids. *	Ash.	Acidity calculated as malic acid gms. per 100 cc.	Polarization		Cane Sugar by Clerget.	Action with Fuller's Earth.	
								Direct.	Invert.			
H. J. DAGER, INSPECTOR—*Con.*												
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
.....	1·0147	0·9913	1·0234	11·08	5·73	0·25	0·66	−12·5	−12·6	None.	Colour light.	
Sold as Apple Cider.	1·0233	0·9975	1·0254	3·03	6·22	0·03	0·50	− 0·3	− 1·3	0·20	p. c.	Contains salicylic acid.
"	1·0244	0·9997	1·0248	None	6·07	0·00	0·48	− 2·5	− 5·5	0·56	95 p.c colour removed	
J. TALBOT, INSPECTOR.												
....	1·0326	0·9965	1·0359	4·40	8·79	0·13	0·50	− 7·8	− 7·9	None	No colour removed	
A. C. LARIVIERE, INSPECTOR.												
Apple Cider, Finest Sparkling Double Filtered.	1·0197	0·9924	1·0267	9·58	6·54	0·20	0·43	−17·0	−17·6	None	No colour removed	
Free from alcohol, possessing the full rich flavour of fresh fruit.	1·0330	0·9992	1·0343	0·93	8·40	0·02	†0·60	− 3·6	− 5·2	0·30	.....	Orange cider dyed with junk aniline dye, showing reaction for salicylic acid: considerable chlorides & sulphates present.
Apple Cider ..	*										.....	
" ..	1·0123	0·9917	1·0218	10·54	5·34	0·28	0·54	− 8·8	−10·4	0·30	Light colour	
The "Golden Key Brand," Orange Cider.	1·0617	0·9999	1·0622	None	15·24	0·01	0·55	+ 7·6	−17·0	4·59	.....	Orange cider dyed with orange aniline dye contains salicylic acid; considerable chlorides and sulphates present.

118 page 12. † Calc. as citric. * Both samples broken.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF CALGARY—
1908.						
Aug. 14	Cider	35311	Great West Liquor Co., Calgary.	3 pts	30	S. Allen, Norwich, Ont.
" 14	"	35312	Calgary Wine & Spirit Co., Calgary.	3 "	1 00	Symons & Co., London, Eng.‡
" 14	"	35313	Macpherson Fruit Co., Calgary.	3 "	25	S. Allen, Norwich, Ont.
" 25	"	35314	Edmonton Wine & Spirit Co., Edmonton.	3 "	90	P. Saintier, Rouen, France.
" 25	"	35315	Little Gem Fruit Store, Edmonton.	3 "	25	S. Allen, Norwich, Ont.
						DISTRICT OF VANCOUVER—
July 29	Cider	34305	R. A. Crawford, 812 Pender St., Vancouver.	3 pts	30	Thorpe & Co., Vancouver.
" 29	"	34306	Hughes Bros., 102 Hastings St., Vancouver.	3 "	40	Meikle Bros. & Co., Vancouver.
" 29	"	34307	A. Emmanuel, Hastings St., Vancouver.	3 "	30	Cross & Co., Vancouver
" 29	"	34308	Wells & Co., Pender St., Vancouver.	3 "	35	Wells & Co., Vancouver.
" 30	"	34309	Thorpe & Co., Beatty St., Vancouver.	3 "	15	W. J. Savory, Victoria, B.C.
						DISTRICT OF VICTORIA—
July 29	Cider (boiled)	34956	W. K. Houston & Co., Victoria.	3 bots	60	F. Savory, Victoria.
" 23	" "	34963	West End Grocery Co., Ltd., Victoria.	3 "	75	Brady Houston Packing Co., Victoria.

† Both samples broken.
* S=Sp. grav. of dealcoholized residue solids p.c. 245 (S—1), U.S. Bureau of Chemistry, Bull. 118

SESSIONAL PAPER No. 14

CIDER.

Inspector's Report.	Specific Gravity of Cider.	Specific Gravity of Distillate.	Specific Gravity of Residue.	Results of Analysis.								Remarks and Opinion of the Chief Analyst.
				Alcohol as proof spirit Volume.	Total Solids.*	Ash.	Acidity calculated as malic acid gms. per 100 cc.	Polarization		Cane Sugar by Clerget.	Action with Fuller's Earth.	
								Direct.	Invert.			
R. W. FLETCHER, INSPECTOR.												
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
.....	1·0091	0·9968	1·0089	11·76	2·18	0·15	0·84	— 0·2	— 0·2	None.	Colour light	Volatile acid as acetic = 0·39.
.....	1·0067	0·9933	1·0135	8·38	3·31	0·19	0·78	— 2·5	— 2·7	"	No colour removed	Volatile acid as acetic = 0·40. Contains salicylic acid.
.....	†										.....	
.....	1·0196	0·9925	1·0271	9·45	6·63	0·13	0·62	— 5·2	— 5·3	"	No col'r removed	
.....	0·9987	0·9928	1·0055	9·04	1·35	0·19	0·41	— 0·2	— 0·5	"	Colour light	
J. F. POWER, INSPECTOR.												
.....	1·0235	0·9971	1·0271	3·58	6·63	0·08	0·82	— 0·5	— 4·1	0·67	.....	
Marked "Pure Apple Cider."	1·0168	0·9908	1·0197	11·76	4·82	0·22	0·65	— 5·0	— 5·3	None	Colour light	Volatile acid as acetic = 0·37.
.....	1·0391	0·9971	1·0428	3·58	10·48	0·08	1·30	— 0·7	— 8·8	1·51	.....	
.....	1·0123	0·9920	1·0190	10·13	4·65	0·16	0·96	— 5·2	— 5·3	None	Colour light	
.....	1·0180	0·9970	1·0205	3·71	5·02	0·06	0·64	— 1·8	— 1·8	"	50 p.c colour removed	Contains salicylic acid.
D. O'SULLIVAN, INSPECTOR.												
"Pure Boiled Cider."	1·1961	0·9993	1·1966	0·81	48·16	0·39	1·12	+11·2	+ 6·8	0·83	.....	Total solids by drying grms. pr. 100 cc. = 51·28. Reducing sugar before inversion = 35·40. Reducing after inversion = 37·20
"	1·1993	0·9993	1·1996	0·81	48·90	0·46	1·12	— 8·4	+ 3·2	0·97	.....	Total solids by drying = 51·42. Reducing sugar before inversion = 37·06. Reducing sugar after inversion = 38·16

BULLETIN No. 169—

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF VICTORIA—			
1908.						
Jnly 23	Cider (boiled)...	34967	W. B. Hall, Victoria.....	3 bots..	75	Brady Houston Packing Co, Victoria.
" 23	"	34971	Dixi H. Ross & Co., Victoria	3 " ..	60	" " ..
" 29	"	34973	W. K. Houston, Victoria. ..	3 " ..	55	F. Savory, Victoria..... ...

* S=Sp. grav. of dealcoholized residue solids p. c. = 245 (S—1), U.S. Bureau of Chemistry, Bull. 118 page 12.

SESSIONAL PAPER No. 14

CIDER.

Inspector's Report.	Specific Gravity of Cider.	Specific Gravity of Distillate.	Specific Gravity of Residue.	Results of Analysis.									Remarks and Opinion of the Chief Analyst.
				Alcohol as proof spirit Volume.	Total Solids.*	Ash.	Acidity calculated as malic acid gms. per 100 cc.	Polarization		Cane Sugar by Clerget.	Action with Fuller's Earth.		
								Direct.	Invert.				
D. O'SULLIVAN, INSPECTOR—*Con.*													
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
"Pure Boiled Cider."	1 1982	0 9990	1 1985	1 16	48 63	0·43	1 11	+15 6	+ 4 4	2·17	. .		Total solids by drying = 51 17. Reducing sugar before inversion 35·38 Reducing sugar after inversion = 36 84.
Ontario cider, vendor stated that cider was pure as far as he knew.	1 0576	0 9943	1 0635	7 10	15 57	0 16	1 36	—10 1	10 2	None	50 p c colour removed		Volatile acid as acetic = 0 91.
Champagne cider vendor said it was pure.	1 6490	0 9952	1 0557	5 98	13 61	0 16	1 52	—10 3	10 3	..	80 p.c colour removed		Volatile acid as acetic = 1·13.

APPENDIX T.

BULLETIN No. 170—BUTTER.

Ottawa, December 23, 1908.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I beg to hand you a report upon 295 samples of butter, collected throughout Canada in October and November last.

All samples have been examined as to content of water, the limit being fixed by the Butter Act at 16 per cent. The fat has been examined by the refractometric test; and wherever the indications seemed abnormally high, further examination has been made.

No foreign fats are present in any of these samples. Excess of water has been found in three samples from the Kingston District, viz.:—Nos. 36067, 36071 and 36072. The three samples in question are stated to be manufactured, or furnished by P. Downham, of Peterboro.

It is quite apparent the butter is essentially genuine and of high quality, as offered for sale in Canada.

I beg to recommend the publication of this report as Bulletin No. 170.

I have the honour to be, sir,

Your obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Water.	Results of Analysis. Butyro-refractometer, Index No.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.										
1908.								p.c.	p.c.	
Oct. 13	Butter.	33716	R. M. Fulton, Sydney, N.S.	1 lb.	28	J. T. Pearden, Sydney, N.S.		9·60	51·4	
" 14	"	33717	Balls Market, Sydney, N.S.	1 "	25	Unknown	Sold as country tub butter.	7·26	52·0	
" 14	"	33718	W. A. Lavash, Sydney, N.S.	1 "	28	Smith & Proctor, Sydney, N.S.	Sold as dairy tub butter.	8·56	53·2	
" 15	"	33719	W. H. Snook & Co., Truro, N.S.	1 "	28	A. V. Lyghtbody, Masstown, N.S.	Sold as dairy print.	13 56	54·1	Reichart value—28·0
" 15	"	33720	R. T. Creig & Co., Truro, N.S.	1 "	28	A. Brown, Stewiacke, N.S.	" "	8·40	53·0	
" 15	"	33721	E. E. O'Brien & Co., Truro, N.S.	1 "	27	Unknown		7·46	52 2	
" 16	"	33722	J. H. Barss, Wolfville, N.S.	1 "	28	Mrs. King, Hontonville, N.S.	Sold as dairy roll.	9·04	52·8	
" 17	"	33723	Jno. Snyder & Sons, Windsor, N.S.	1 "	25	Mrs. John Dill, Newport, N.S.		9·50	52·3	
" 17	"	33724	Wentworth Stores, Windsor, N.S.	1 "	22	Mrs. Davison, Chester Roads, N.S.		12·56	52·0	
" 19	"	33725	E. J. Lucas, Halifax, N.S.	1 "	27	B. H. Power, Halifax, N.S.		9·72	52·7	
" 19	"	33726	Jas. Hogan, Halifax, N.S.	1 "	28	Mrs. Cready, Cape Breton.	Dairy tub.	4·36	52·8	
" 20	"	33727	Jas. A. Leaman & Co., Branch 4, Halifax, N.S.	1 "	26	Nickerson & Hart, Halifax, N.S.	"	8·20	51·3	
" 20	"	33728	Rooney & Lovitt, Halifax, N.S.	1 "	26	Guays River, N.S., Supply Co.		6·56	52·4	
" 20	"	33729	P. T. Shea, Halifax, N.S.	1 "	27	Mr. Patterson, Hants Co., N.S.		7·22	52·9	
" 20	"	33730	Bentley & Layton, Halifax, N.S.	1 "	32	R. Fisher, Stewiacke, N.S.		8 40	52·8	

"	20	"	..	33731	E. Sanford, Halifax, N.S	1	"	..	27	J. H. Blois, Rawdon, N.S ..	Sold as dairy tub.....	10·82	52·6	
"	21	"	..	33732	E. B. Tracey, Halifax, N.S	1	"	..	25	J. C. Wellwood, Rawdon, N.S..	Sold as dairy butter	9·10	52·3	
"	21	"	..	33733	L. W. Dixon, Halifax, N.S	1	"	..	28	Mrs. McPhee, Rawdon, N.S.....	" "	7·50	52·2	
"	21	"	..	33734	T. Pearson & Co., Halifax, N.S	1	"	..	25	Smith & Proctor, Halifax, N.S	.....	7·96	51·6	
"	22	"	..	33735	S. Mott, Dartmouth, N.S ...	1	"	.	26	A. Fraser, Govr., Hants Co.. ...	Sold as tub butter.....	5·10	52·0	

DISTRICT OF PRINCE EDWARD ISLAND—T. MOORE, INSPECTOR.

Oct.	28	Butter..	..	31391	N. Penpraise, Victoria..... ...	1	lb	..	24	Mrs. Paul Curtis, Tryon. ...	.....	7·76	52·8	
"	28	"	..	31392	O. B. Wadman, Crapaud.....	1	"	..	23	Mrs. E. McNeill, Tryon	.....	7·80	51·4	
"	30	"	..	31393	W. W. Walker, Charlottetown	1	"	..	27	Wallace Wood, Lot 19 ..	.....	10·50	50·5	
"	31	"	..	31394	M. McLeod, Charlottetown....	1	"	..	25	J. A. Farquharson, Charlottetown	.....	11·58	51·4	
Nov.	2	"	..	31395	James Kelly, Charlottetown ...	1	"		24	Miss Traynor, Glen Finnan..	.....	5·10	51·9	
"	2	"	..	31396	E. Toombs, Charlottetown	1	"	..	25	Mrs. Tonson, Brackley Point Road.	.....	8·90	51·5	
"	4	"	..	31397	Jas. Laferty, Charlottetown ...	1	"	..	24	Geo. Toombs, Charlottetown	.....	9·16	52·0	
"	4	"	..	31398	John Furgeson, Charlottetown	1	"	..	25	Mrs. H. Horne, Milton.	.....	8·31	53·9	R ichart value 29·4
"	4	"	..	31399	Connelly, Bros., Charlottetown.	1	"	..	25	Mrs. Hickox, Wheatley River	.....	7·30	52·0	
"	5	"	..	31400	Woodman Bros., Alberton . . .	1	"	..	24	Permenn's Crocket, Montrose.	.....	6·46	50·8	
"	6	"	..	31401	J. J. Arsnault & Co., Tignish .	1	"	..	20	Not known.....	.....	7·56	51·5	
"	6	"	..	31402	J. H. Myrick, Beloney's Corner.	1	"	..	20	A. Des Roches, Little Tignish	.....	8·84	51·0	
"	6	"	.	31403	Mrs. Yougan & Wright, Summerside.	1	"	..	25	Wm. Anderson, St. Eleanors	.....	12·60	51·8	
"	7	"	..	31404	Waugh & Steeves, Summerside	1	"	..	25	Not known	.....	9·00	51·2	
"	7	"	..	31405	D. McKenzie, Kensington	1	"	..	24	Simpson Crozier, Darnley .	.....	12·24	51·5	
"	7	"	..	31406	Jas. Kennedy, Kensington....	1	"		24	Wesley Heaney, Clinton	.....	11·50	52·4	
"	13	"	..	31407	Prowse & Son, Murray Harbour	1	"		22	Not known.....	.....	9·40	53·2	
"	11	"	..	31408	Prowse & Son, Murray River...	1	"		22	"	.....	12·30	52·0	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis. Water.	Results of Analysis. Butyro-refractometer, Index No.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF PRINCE EDWARD ISLAND—T. MOORE, INSPECTOR *Concluded.*										
1908.								p. c.	p. c.	
Nov. 14	Butter,	31409	Joseph McCabe, Iona	1 lb	22	Mrs. Bremric, Iona		10·40	52·8	
" 16	"	31410	J. F. McDonald, Belfast	1 "	23	T. McKinnon, Orwell		6·80	50·6	
DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.										
Oct. 20	Butter.	29824	Robert McAfee, St. John, N.B.	1 lb	30	Geo. E. Barbour Co., Ltd, St. John, N.B.	From tub of butter on retail in vendor's store.	8·40	52·0	
" 20	"	29825	Edward Walsh & Co., St. John, N.B.	1 "	30	A. B. Camp, Humphrey's Landing, N.B.	From 15 lb. tub on retail in vendor's store.	9·96	52·7	
" 20	"	29826	John V. Holland, St. John, N.B.	1 "	30	Thomas Gorman, St. John, N.B.	" "	7·40	53·0	
" 22	"	29827	M. E. Grass, St. John, N.B.	1 "	32	James Schofield, St. John, N.B.	Canadian creamery butter, sold without guarantee of purity.	12·50	52·6	
" 22	"	29828	H. M. Floyd, St. John, N.B.	1 "	30	T. Whitcolpitts, Forest Glen, N.B.	Country store butter	11·06	53·2	
" 22	"	29829	P. M. Case, St. John, N.B.	1 "	32	Case Vanwart, St. John's River, Wickham, N.B.	Tub butter	8·92	52·4	
" 22	"	29830	William Baxter, St. John, N.B.	1 "	30	J. F. Reirstead, St. John, N.B	"	8·40	52·4	
Nov. 5	"	29831	Sussex Mercantile Co., Ltd., Sussex, N.B.	1 "	30	SussexMercantile Co.,Ltd.,Elgin, N.B.	Farmers butter	11·24	52·9	
" 5	"	29832	S. L. Shocton, Petitcodiac,N.B.	1 "	25	Miles Alward, Butternut Ridge, N.B.		12·56	52·0	
" 6	"	29733	Simon Melanson, Moncton,N.B.	1 "	28	Philip P. Leblanc, Notre Dame, N.B.		10·56	53·0	
" 6	"	29834	George Stables, Newcastle,N.B.	1 "	30	Thos. Dignan, Prince Edward Island.		14·08	52·0	

"	10	"	..	29835	D. S. McLachlan, Chatham, N.B.	1	"	..	28	Harris Abattoir Co., Toronto, Ont.	Dairy butter	8·40	50·2
"	11	"	..	29836	W. J. Kent & Co., Ltd., Bathurst N.B.	1	"	..	22	Not known	Tub butter	10·18	52·1
"	12	"	..	29837	E. J. Allingham, Campbellton, N.B.	1	"	..	28	Samuel Laughlin, Black Pond, N.B.	"	9·26	53·4
"	12	"	..	29838	F. S. Titus, Campbellton, N.B	1	"	..	27	William Howiston, Black Cape, P.Q.	"	7·06	52·0
"	18	"	..	29839	W. R. Logan, Fredericton, N.B.	1	"	..	30	John Hagerman, Keswick, N.B.		8·16	50·1
"	19	"	..	29840	John Graham Estate, Woodstock, N.B	1	"	..	27	E. Marsten, Northampton, N.B.	Country diary	11·56	51·5
"	21	"	..	29841	H. N. Hickinson, Perth, N.B.	1	"	..	28	James Lun, Perth, N.B.	"	10·26	50·0
"	21	"	..	29842	Geo. H. De-Witt, Andover, N.B.	1	"	..	25	Mrs. Geo. Murgerson, Four Falls, N.B.	"	9·16	52·0
"	23	"	..	29843	J. L. White, Grand Falls ...	1	"	..	25	Mrs. Paul Martin, St. André Parish, N.B.	"	7·92	53·4

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

Oct.	10	Butter..		34429	Arthur Carou, Trois Saumon...	1	lb.		25	Adélard Leclerc, St. Jean, Point Joli.		6·60	52·3
	16	"	..	34454	Irmée Allard, L'Islet	1	"	..	27	Ferdinand Thibeault, L'Islet		10·46	52·6
	17	"	..	31461	Eugène Métivier, St. Cyrille....	1	"		26	Eugène Métivier, St. Cyrille.		13·13	51·3
"	20	"	..	34464	Napoleon Bouchard, Kamouraska.	1	"	..	27	Leon Chouard, St. Paschal		10·20	53·0
"	21	"	..	34465	Thadé Theriault, Riviere du Loup	1	"	..	25	Unknown		8·41	52·1
"	21	"	..	34466	L. H. Levasseur, Riviere du Loup.	1	"	..	28	A. A. Nichol, St. Simon.	Not labelled	10·00	52·0
"	21	"	..	34469	A. E. Thivierge, Riviere du Loup.	1	"	..	30	J. B. Renaud & Co., Quebec.		7·40	53·2
"	21	"	..	34470	A. Richeaume, Riviere du Loup.	1	"	..	27	Unknown		6·06	51·9
"	21	"	..	34471	V. Doveau, Riviere du Loup ..	1	"	..	25	Theophile Serois, St. Hubert		8·58	52·4
"	21	"	..	34472	Martin Damien, Riviere du Loup.	1	"	..	28	Unknown		8·62	53·3
"	21	"	..	34474	Joseph Viel, Riviere du Loup..	1	"	..	30	Extras Kirouack, St. Antoney		8·50	52·5
Nov.	5	"	..	34483	Francois Bougoin, Tadousac....	1	"	..	28	Ismael St. Jean, L'Anse, St. Jean		11·26	52·0
"	6	"	..	34485	Aimée Belly, St. Siméon	1	"	..	25	Madm. Joseph Trepanier, St. St. Simeon.		7·76	53·8 Reichart value=21·2
"	6	"	..	34486	Cyrille Arvey, Port au Persil...	1	"	..	25	Vendor		10·86	52·7

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DISTRICT OF QUEBEC—E. BELAND, INSPECTOR—*Concluded.*										
1908.								p. c.	p. c.	
Nov. 9	Butter..	34488	Alfred Larouche, Murray Bay..	1 lb ..	28	J. B. Reneaud & Cie, Quebec....	.....	10·10	52·2	
" 9	" .	34490	Elzar Larouche, Murray Bay...	1 " ..	25	Francois Goudreau, St. Agnèse....	.....	4·70	52·9	
" 9	" .	34493	Paschal Rochette, Riviere Mailloux.	1 " ..	28	J. B. Reneaud & Cie, Quebec....	.....	14·10	52·8	
" 9	" ..	34494	Jos. Brassard, Murray Bay	1 " ..	28	Ferdinand Perron, Cap ou Oies..	.....	7·90	52·2	
" 10	" ..	34498	Jos. Couturier, Murray Bay....	1 " ..	30	Emile Coté, Montmagny .	.....	12·20	52·1	
" 12	" ..	34500	George Bouchard, St. Irénée...	1 " ..	25	Joseph Gauthier, St. Pierre.....	.....	6·56	51·7	
" 12	" .	36801	H. Perron, St. Irénee.....	1 " ..	25	Unknown	.....	12·80	54·3	Reichart value=22·6
DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.										
Oct. 8	Butter..	859	T. A. Wood & Co., Montreal...	1 lb ..	26	Whyte Packing Co., Montreal...	.....	14·80	52 1	
" 8	" ..	860	Mongeau frères, Montreal.....	1 " ..	24	Oliver, Dorion & Stroud, Montreal.	.....	9·22	52·2	
" 9	" ..	861	T. Elliott, Montreal	1 " ..	15	....	This butter is from different tubs and not in shape for sale as good cooking butter.	7·90	50 6	
" 9	" ..	862	S. L. Nathanson, 256 Cadieux St., Montreal.	1 " ..	28	Gilmore Bros., Rosemore.	Unsalted.....	15·20	50 7	
12	" ..	863	Alph. Clement, St. Agathe des Monts.	1 " ..	25	Mr. Forget, St. Adolphe.....	.....	9 28	51·6	

"	13	"	864	E. Lacut, St. Jerome	1	"	25	Not known.	No marks.	10 70	51·9	
"	14	"	865	O. Chevalier & fils, Joliette	2	pr'ts	24	"	"	8·60	53 1	
"	15	"	866	J. B. Lefebvre, St. Herese de Blainville.	1	lb	26	Gunn, Langlois & Cie, Montreal		11·02	51·8	
"	16	"	867	H. Robert, Beaurivage Longue Point.	1	"	25	Alexis Lapierre, Place Jacques Cartier, Montreal.		10·08	51·8	
"	16	"	868	Jos. Dubois, 551 Notre Dame, Maisonneuve.	1	"	26	Matteu, Fortin & Monette, Montreal.	Tub marked $\frac{D}{21}$	13·28	50·5	
"	16	"	869	Arthur Dipatie, 767 Ontario St., Maisonneuve.	1	"	26	Gunn, Langlois & Cie, Montreal		10·32	51·7	
"	21	"	870	Jas. Duncan, Lachine	1	"	26	" "	No marks.	5·80	51·9	
	22	"	871	N. Corbeil, Sault Recollet	1	"	25	W. Champagne, Montreal	Tub marked H. O. H. 68	7 94	50·9	
"	28	"	872	E. E. Olivier, Montreal	1	"	25	Z. Limoges, Montreal	No marks.	8 00	52 3	
"	29	"	873	Primeau frères, Valleyfield	1	"	25	Mathew, Fortin & Monette, Montreal.	Tub stamped (3)	9 32	52 6	
"	30	"	874	N. Fortaine, Bonsecours Market, Montreal.	1	"	25	Not known		7 60	52·6	
"	30	"	875	T. L. Rolland, Bonsecours Market, Montreal.	1	"	24	Lonè & Chrismas, Montreal	Corner of tub stamped Wilson, Carmen, Man.	8·86	52 5	
"	30	"	876	Aubin & Cie, Marché St. Laurent.	1	"	24	Gunn, Langlois & Cie, Montreal		6 30	52 5	
"	30	"	877	J. E. O Brien, Marché St. Laurent.	1	"	27	J. Dalrymple & Son, Montreal.	From tub marked 2396 with blue pencil.	13 68	53 1	
"	30	"	878	C. Lariviere, Marché St. Laurent.	1	"	23	Whyte Packing Co., Montreal		10 38	53·5	

DISTRICT OF MONTREAL J. J. COSTIGAN, INSPECTOR.

Oct.	9	Butter.	32756	Couture & Moore, Sherbrooke	1	lb	28	Not given		8 72	52 3	
"	9	"	32757	Royer & Fissette, Sherbrooke	1	"	29	J. E. Gibson, Brompton, P.Q		8 20	52 8	
"	9	"	32758	D. W. Stenson, Sherbrooke	1	"	27	Not given		6·90	52 8	
"	9	"	32759	Bernard & Co., Sherbrooke	1	"	27	"		7·32	52 1	
"	13	"	32760	R. O. Brodeur, St. Hyacinthe	1	"	28	J. B. Grenier, St Rosalie, P. Q		9 80	52·1	
"	13	"	32761	A. Leost, St. Hyacinthe	1	"	28	A. Casavant, St. Dominique.		11 76	52·7	
"	15	"	32762	J. E. Caouette, Thetford Mines.	1	"	30	J. B. Renaud, Quebec.		8 30	52·0	
	15	"	32763	Louis Robert, Thetford Mines.	1	"	28	A. Labrauche, Thetford Mines, P.Q.		11·08	53 1	

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DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR—*Concluded.*										
1908.								p. c.	p. c.	
Oct. 15	Butter..	32764	White & Wigget, Lennoxville..	1 lb ..	28	Eastern Townships Dairy Produce Co.		8·24	51·8	
" 16	" ..	32765	James McCoy, Danville..	1 " ..	25	A. Rosseau, Shipton, P.Q.		13·52	52·5	
16	" ..	32766	F. N. Gibson, Danville	1 " ..	30	J. A. McCallum, Shipton, P.Q.		9·30	52·5	
" 19	" ..	32767	A. E. D'Artois & fils, Farnham.	1 " ..	28	Alexis Delage, Megantic, P.Q.		14·50	52·5	
" 19	" ..	32768	J. A. Menard, Farnham	1 " ..	28	Not given		12·28	52·4	
" 19	" ..	32769	P. Larochelle, Farnham.	1 " ..	28	J. H. Archambault, Rapid River.		10·14	52·3	
" 20	" ..	32770	N. Tallifer, Granby	1 " ..	30	Not given		11·46	52·3	
" 20	" ..	32771	Isabelle & Rivet, Granby	1 " ..	30	Shefford Mountain Creamery		9·54	52·5	
" 20	" ..	32772	M. Mercure & fils, Granby	1 " ..	30	C. Dussault, Granby, P.Q.		10·60	52·1	
" 20	" ..	32773	C. Vincent, Granby	1 " ..	30	Not known		7·40	52·9	
20	" ..	32774	H. L. M. Vaudry, Waterloo	1 " ..	28	Wm. Murray, Waterloo, P.Q.		11·46	52·1	
" 20	" ..	32775	Auguste, Hebert, Waterloo	1 " ..	28	Geo. Robb, Warden, P.Q.		8·80	52·8	
DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.										
Sept. 30	Butter..	22708	McCuaig, Cheney & Co., Vankleek Hill.	1 lb ..	28	Mrs. Sharpe, Vankleek Hill		10·40	53·0	
" 30	" ..	22709	Cameron & Downing, Vankleek Hill.	1 " ..	27	Mrs. R. Munter, Vankleek Hill		5·20	51·9	

Oct.	3	Butter.	22710	Jas. L. P. Sanders, Kemptville	1 lb.	25	Farmer		9·96	52·0
"	6	"	22711	W. West, Almonte	1 "	25	"		12·58	52·0
"	9	"	22712	Michael Vice, Renfrew	1 "	25	Not known		7 40	52·1
"	9	"	22713	E. D. Osborne, Arnprior	1 "	28	"		6 40	53·0
"	12	"	22714	Mrs. P. Brankin, Ottawa	1 "	28	Farmer		8·14	52·0
"	12	"	22715	Eustache Gougeon, Ottawa	1 "	28	Freedman, Ottawa		11 70	51·0
"	12	"	22716	S. Diamend, Ottawa	1 "	26	J. Freedman, Ottawa		8 00	52·5
"	12	"	22717	H. Racine, Ottawa	1 "	25	Lerner & Moyneur, Ottawa		9·30	53·6
"	13	"	22718	Carrière Bros., Ottawa	1 "	29	" "		9 70	51·5
"	13	"	22719	J. L. McMullen, Ottawa	1 "	29	J. Freedman, Ottawa		12·46	51·6
"	13	"	22720	Mrs. P. Slattery, Ottawa	1 "	26	Lerner & Moyneur, Ottawa		8 10	53 5
"	13	"	22721	John Baxter, Ottawa	1 "	29	" "		10 46	52 9
"	13	"	22722	J. M. Dowdall, Ottawa	1 "	28	J. Freedman, Ottawa		13 70	52 0
"	13	"	22723	Wm. York, Ottawa	1 "	29	Lerner & Moyneur, Ottawa		9·56	52 5
"	10	"	22767	J. E. Cook, Winchester	1 "	30	Ault Bros., Winchester	Sold as butter mfd. from whey.	8·01	52·0
"	14	"	22768	J. H. McKeen, Ottawa	1 "	29	Farmers		7·10	52·6
"	14	"	22769	Lanthier Bros., Ottawa	1 "	28	Lithevick & Dumont, Ottawa		5 68	50·9
"	14	"	22770	Mrs. May, Ottawa	1 "	28	Not known		4 74	53·0

DISTRICT OF KINGSTON.

Nov.	3	Butter.	36056	H. Gordon, Colsburg	1 lb.	23	J. Cullen, Colsburg		13·73	50·7
"	3	"	36057	F. Roserear, Port Hope	1 "	27	Not known		10·76	52 5
"	3	"	36058	J. Curtis, Port Hope	1 "	30	H. A. McIntosh, Fenelon Falls		8·76	52·9
"	4	"	36059	A. C. Babcock, Lindsay	1 "	35	J. McGill, Gorin		14 50	53·5
"	4	"	36060	F. A. Fisher, Lindsay	1 "	30	M. J. Lewis, Lindsay		8 50	51·2

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DISTRICT OF KINGSTON—JAS. HOGAN, INSPECTOR—*Concluded.*										
1908.								p. c.	p. c.	
Nov. 4	Butter.	36061	W. M. Robson, Lindsay	1 lb	30	M. J. Lewis, Lindsay		8·70	52·5	
" 4	"	36062	Adam Bros., Lindsay	1 "	30	" "		9·92	53·0	
" 4	"	36063	J. Flurey, Lindsay	1 "	27	Edwin Mark, Little Britain		10·96	52·3	
" 4	"	36064	J. Brown, Lindsay	1 "	27	J. Found, Little Britain		10·08	53·5	
" 4	"	36065	W. E. Baker, Lindsay	1 "	27	Not known		9·30	52·7	
" 4	"	36066	J. Campbell, Lindsay	1 "	30	M. J. Lewis, Lindsay		8·40	53·0	
" 4	"	36067	H. L. Burnham, Peterboro	1 "	30	P. Downham, Peterbero		16·62	52·7	
" 4	"	36068	J. H. Heol, Peterboro	1 "	30	Lorneville, Ont		10·40	52·5	
" 4	"	36069	H. Bradshaw, Peterobor	1 "	27	Dabbin, Peterboro		10·38	51·7	
" 4	"	36070	A. J. Warne, Peterboro	1 "	30	Sothworth Bros., Hawood		11·36	53·5	
" 4	"	36071	T. G. Robinson, Peterboro	1 "	30	P. Downham, Peterboro		18·52	53·0	
" 4	"	36072	R. P. Carey, Peterboro	1 "	30	" "		17·10	51·9	
" 4	"	36073	J. R. Bell, Peterboro	1 "	30	M. J. Lewis, Lindsay		9·54	52·1	
" 4	"	36074	Mason Co., Peterbore	1 "	28	Mrs. Hawedm		8·90	50·7	
" 4	"	36075	J. Sutherland, Peterboro	1 "	30	Mrs. Blakley, Hawood		10·86	52·0	

1908.											
									p.c.	p.c.	
Oct.	12	Butter.	36101	Matthews & Latimer, Durham	1 lb.	21	Mrs. W. J. McFadden, Durham P O.		9·86	52·3	
"	13	"	36102	James Whitehead, Walkerton.	1 "	21	Not known		10·30	52·5	
"	13	"	36103	Neil McGillivary, Port Elgin	1 "	25	A. McKinnon, Port Elgin P O.		8·74	52·5	
"	14	"	36104	James Hyde Paisley	1 "	25	Mrs. J. Alexander, Paisley		8·60	53·4	
"	14	"	36105	Elliott & Lambert, Mildmay	1 " 6oz.	30	Mrs. David Harper, Mildmay		9·56	53·1	
"	15	"	36106	Ross & Wormington, Chesley.	1 lb.	20	Not known		7·14	51·9	
"	16	"	36107	D. A. McLean, Owen Sound.	1 "	25	Mrs. Geo. Reid, Annan P O.		5·96	53·4	
"	19	"	36108	C. T. Davis, Stouffville	1 "	26	Mrs. J. Hover, Stouffville		7·80	52·0	
"	19	"	36109	T. B. Reine, Markham	1 "	28	W. Robb, Markham		8·20	51·0	
"	20	"	36110	Thompson & Crosby, Uxbridge	1 "	26	Not known		12·26	51·2	
"	21	"	36110	C. C. Pedlar, Toronto	1 "	27	J. J. Fee, Toronto		11·40	52·2	
"	21	"	36112	Geo. J. Bannister, Toronto.	1 "	30	The Morgan Supply Co., Toronto	One sample destroyed	7·28	53·5	
"	21	"	36113	Thos. Henderson, 265 Pape ave.	1 "	39	A. Lemman		11·20	52·8	
"	22	"	36114	Fred. White, Toronto	1 "	28	J. F. Bowman, Wallenstein, P.O.		9·12	54·4	Reichart value 25·9
"	22	"	36115	M. Freeman, Hamilton	1 "	28	J. Halliday, Freelton, P O		9·20	50·0	
"	22	"	36116	J. Rees, Hamilton	1 "	28	Not known		11·20	52·5	
"	22	"	36117	J. Lowrie, Hamilton	1 "	28	Jas. Halliday, Strabade, P O		12·34	51·5	
"	22	"	36118	E. H. Young, Hamilton	1 "	28			8·96	51·4	
"	23	"	36119	A. Monatta, Hamilton	1 "	26	Farmers		8·06	52·1	
"	21	"	36120	E. K. Scoley, Hamilton	1 "	30	J. A. Ford, Omagh P O		9·86	52·5	

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DISTRICT OF LONDON—T. KIDD, INSPECTOR, AND J. TALBOT, ACTING INSPECTOR.										
								p. c.	p. c.	
Oct. 7	Butter.	30506	D. Cameron, Listowell	1 lb	20	Mrs. Shandy, Wallace Township		6·22	53·0	
" 8	"	30513	Mathew Williams, Seaforth	1 "	22	Mrs. Parsens, Hullet Township, Huron Co.		10·20	52·2	
" 12	"	30517	William T. O'Neil	1 "	22	Mrs. Jno. Cartright, Hullet Township.		10·76	53·1	
" 15	"	30523	Pickard & Flemings, St. Mary's	1 "	30	St. Mary's Creamery Co., St. Mary's.		6·88	52·2	
" 15	"	30525	F. W. Hutton, St. Mary's	1 "	24	Mrs. Wm. Bailey, St. Mary's		8·62	51·7	
" 15	"	30527	White Packing Co., Stratford	1 "	25	Mrs. Parker, Ellis Township		8·42	52·1	
" 15	"	30529	McCulley & Haugh, Stratford	1 "	25	Daniel Turiff, Ellis Township		14·90	51·5	
" 15	"	30536	J. A. Monteath, Stratford	1 "	25	Not known		8·30	52·3	
" 15	"	30540	Mrs. N. A. Coppin, Mitchell	1 "	22	"		4·10	52·7	
" 21	"	30549	Mrs. W. D. Geo	1 "	25	Mrs. Stewart, Fullerton Township.		7·96	52·5	
" 5	"	30981	P. T. Dean, Goderich	1 "	22	Mrs. Rundle, Goderich Township		6·94	52·2	
" 5	"	30485	M. Allen, Goderich	1 "	22	Mrs. Fulford, Colbourne Township.		10·50	52·1	
" 6	"	30997	William Patterson, Wingham	1 "	21	Not known		7·04	53·0	
Nov. 12	"	34701	Jno. H. Laird, Galt	1 "	28	Farmers		12·16	52·2	
" 13	"	34695	E. Inglehart, Guelph	1 "	28	"		12·46	51·7	
" 13	"	34696	S. E. Wiggins, Guelph	1 "	28	"		8·26	50·7	

	13	"	..	34697	Jas. Gow, Guelph	1	"	..	28	"		11·16	51·4
"	14	"	..	34700	Fury & Thompson, Woodstock	1	"	..	27	"		8·36	51·6
"	14	"	..	34703	F. C. Tait, Woodstock	1	"	..	28	"		12·46	51·0

DISTRICT OF WINDSOR—J. TALBOT, INSPECTOR.

1908.													
Oct.	7	Butter.	..	34608	W. J. Mullens, London	1	lb	..	26	W. C. Reeves, Hyde Park		9·30	53·2
"	8	"	..	34616	A. J. Lyons, London	1	"	..	27	W. Maralee, Market House, London.		6·66	52·1
"	8	"	..	34618	Mrs. M. Hobbins, London	1	"	..	28	Farmer		9·96	52·2
"	8	"	..	34621	Wm. Hayes, London	1	"	..	26	S. Loomis, Park Hill		5·00	51·1
"	8	"	..	34624	S. Sands, London	1	"		27	Ferguson & Son, London		5·04	51·2
"	14	"	..	34635	Jefferies & Smith, Ridgetown	1	"	..	22	Farmer		7·40	52·1
Nov.	10	"	..	34662	A. McKenzie, St. Thomas	1	"	..	30	"		10·80	50·6
"	10	"	..	34664	Butler Bros., St. Thomas	1	"	..	28	"		11·64	52·8
"	10	"	..	34667	Breckett & Vansycle, St. Thomas	1	"	..	28	Not known		10·20	52·8
"	10	"	..	34670	Poustie & Co., Aylmer	1	"	..	29	Western Dairy and Provision Co., St. Thomas.		11·92	52·5
"	10	"	..	34672	H. B. Hodgkins, Aylmer	1	"	..	29	" "		11·20	52·7
"	10	"	..	34678	Stilwell Bros., Tillsonbury	1	"	..	28	Farmer		10·90	52·0
"	19	"	..	34710	W. Moralee, London	1	"	..	25	E. Coleman, N. Ekford		11·36	53·2
"	19	"	..	34711	A. Ferguson & Son, London	1	"		24	Farmer, London Market		9·24	53·0
"	19	"	..	34712	B. Learn, London	1	"	..	26	Mrs. Whiteman, Caradock		12·58	52·5

DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.

Nov.	5	Butter.	..	35765	J. Brown & Co., Neepawa	1	lb	..	25	Geo. Wylie, Neepawa, Man.		9·60	51·9
"	5	"	..	35766	Trett & Co., Neepawa	1	"	..	25	Mr. Griffith, Neepawa, Man.		9·30	52·2
"	6	"	..	35767	S. Schooley, Gladstone	1	"	..	25	Jas. Carruthers, Gladstone, Man.		10·04	52·3

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost		Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis.		Remarks and Opinion of the Chief Analyst.
				Quantity.	Cents.			Water.	Butyro-refractometer, Index No.	
DISTRICT OF MANITOBA—A. C LARIVIERE, INSPECTOR—*Concluded.*										
1908.								p. c.	p. c.	
Nov. 10	Butter..	35768	Robinson & McAvoy, Boissevain	1 lb.	20	Lindsay Harmon, Boissevain		9·38	52·2	
" 10	" ..	35769	T. N. Hughes, Boissevain	1 " ..	25	Mrs. Sam Oke, Boissevain		10·04	51·2	
" 11	" ..	35770	Marquis & McCullough, Killarney.	1 " ..	20	William Ditchfield, Killarney		10·16	52·3	
" 11	" ..	35771	Squair & Rollins, Killarney	1 " ..	20	Not given		9·98	52·0	
" 12	" ..	35772	B. Tobias & Co., Morden	1 " ..	25	Mrs. Stewart, Morden, Man.		9·56	52·4	
" 12	" ..	35773	Rosen & Korman, Morden	1 " ..	25	Not given		10·80	51·3	
" 12	" ..	35774	D. Robinovitch, Morden	1 " ..	20	Jacob Gerzon, Morden, Man		11·26	53·5	
" 16	" ..	35775	J. L. McCosh, Souris	1 " ..	25	Mrs. Lovitt, Souris		7·52	51·8	
" 16	" ..	35776	J. A. Moore, Souris	1 " ..	25	Not given		10·00	51·0	
" 18	" ..	35777	H. Lobe, Brandon	1 " ..	25	J. Y. Griffin Co., Brandon		12·86	51·7	
" 19	" ..	35778	S. Calvert, Treherne	1 " ..	25	Not given		10·40	51·0	
" 19	" ..	35779	Wm. Dickson, Holland	1 " ..	25	"		8·46	51·4	
" 20	" ..	35780	W. L. Campbell & Co., Carman	1 " ..	25	"		7·86	52·0	
Dec. 8	" ..	35781	The Vopni Sigurd Son, Ltd., Winnipeg.	1 " ..	35	H. Tyler, Stonewall		9·24	51·8	
" 9	" ..	35782	H. A. Webb, Elmwood P.O., Winnipeg.	1 " ..	30	Dingle & Stewart, Winnipeg	Jersey Cream Butter	21·52	52·0	
" 11	" ..	35783	J. Paterson, Winnipeg	1 " ..	30	Not given		10·86	52·0	
" 11	" ..	35784	Coyle Bros., Winnipeg	1 " ..	25	"		8·76	52·0	

DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.

Nov.	16	Butter..	35456	Hudson Bay Co., Calgary	1	lb	45	A. S. Blackwood Davisburg.			9·16	51·9
"	24	" ..	35457	D. Milne Co., Ltd., Medicine Hat.	1	" ..	30	Plunkett & Savage, Calgary			6 80	51 5
"	24	" ..	35458	Stewart & Tweed, Medicine Hat	1	" .	30	Mrs. Musgrove, Eagle Butte ..			6·90	51 4
"	24	" .	35459	H. Morrow, Medicine Hat	1	"	30	A. W. Barber, Saskatchewan			4 80	51 0
Dec.	7	" ..	35460	F. P. Switzer, Lacombe	1	" .	25	Campbell & Titsworth, Lacombe			5 92	53·0
"	7	" ..	35461	Campbell & Titsworth, Lacombe	1	"	25	Unknown			12 21	52 6
"	7	" ..	35462	A. Urquhart Co., Ltd., Lacombe	1	" .	25	"			9 50	52·0
"	7	" ..	35463	W. E. Lord Co., Lacombe	1	"	25	A. D. Watson, Lacombe			12 92	52 9
"	8	" ..	35464	Star Trading Co., Lacombe	1	"	25	T. Angers, Angers Ridge			10 70	53 0
"	8	" ..	35465	Compton & Montgomery, Wetaskiwin.	1	" .	25	W. G. Stoall, Louisville, Alta			10 90	52 8
"	8	" .	35466	Rowell Bros. & Lake, Wetaskiwin.	1	"	25	Unknown			9 16	53 0
"	8	" .	35467	Bandeau Trading Co., Wetaskiwin.	1	" .	25	"			11 96	50 7
"	8	" ..	35468	O. H. Johnson, Wetaskiwin	1	" .	25	"			11 36	52 2
"	9	" ..	35469	J. H. Morris & Co., Wetaskiwin	1	" .	35	Edmonton City Dairy, Edmonton			8 66	52 9
"	9	" ..	35470	C. C. Thompson, Edmonton. ..	1	" ..	35	Mrs. Philipe Othewee, Edmonton			12 74	51 4
"	9	" ..	35471	Gariepy & Lessard, Edmonton	1	"	30	Unknown			7 78	52 5
"	9	" ..	35472	Duncan Bros. & Butler, Edmonton.	1	"	30	"			7 90	51·2
"	9	" ..	35473	Acme Co., Edmonton	1	"	25	"			7 80	52·2
"	11	" ..	35474	Hudson Bay Co., Edmonton . .	1	" ..	30	"			7·60	52 0
"	11	" ..	35475	Capital Mercantile Co., Edmonton.	1	" ..	30	Anderson & Hardy, Banff			12·90	52·0

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

Oct.	14	" ..	37501	N. A. Empy, Cedar Cottage,...	1	lb	35	Milne & Gunn, Vancouver.			7 62	52 5
"	14	" .	37502	Hepper & Lovelace, Grandview, Vancouver.	1	" ..	35	Naismith & Co., Vancouver..			7 68	52 0

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.	Inspector's Report.	Results of Analysis. Water.	Results of Analysis. Butyro-refractometer Index No.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR—*Concluded.*										
1908.								p. c.	p. c.	
Oct. 15	Butter..	37503	J. Foran, Vancouver.	1 lb ..	35	Kelly, Douglas & Co., Vancouver		9·92	50·8	
" 15	" ..	37504	F Fillion, Vancouver.	1 " ..	30	Parson & Haddick, Vancouver.		8·32	51·6	
" 17	" ..	37505	Varse & Morse, Vancouver.	1 " ..	25	Vancouver Dairy Co., Vancouver		6·00	53·5	
" 17	" ..	37506	Labelle & Co., Vancouver.	1 " ..	30	Parson & Haddick, Vancouver.		6·60	53·4	
" 19	" ..	37507	London Grocery, Vancouver ..	1 " ..	30	Not known.		4·74	52·5	
" 19	" ..	37508	W. Houston, Vancouver	1 " ..	30	Vancouver Dairy Co., Vancouver		12·72	52·3	
" 19	" ..	37509	Vancouver Poultry Supply Co., Vancouver.	1 " ..	25	Riggs & Wright, Alberta		8·66	50·7	
" 19	" ..	37510	Reid & Millar, Vancouver.	1 " ..	25	Vancouver Dairy Co., Vancouver		14·46	51·7	
" 19	" ..	37511	J. A. Dickie, Vancouver.	1 " ..	30	Not known.		13·32	51·8	
" 19	" ..	37512	C. Turner, Vancouver	1 " ..	25	A. H. Pratt, 3 Hills, Alberta		9·46	51·6	
" 19	" ..	37513	W. H. Malkin & Co., Vancouver	1 " ..	30	Not known.		9·94	51·9	
" 19	" .	37514	J. Y. Griffin & Co., Vancouver.	1 " ..	25	Cold Spring Dairy Co		12·50	52·0	
" 20	" ..	37515	J. W. Abercrombie, Westminster Road.	1 " ..	30	Vancouver Dairy Co., Vancouver		12·40	52·0	
" 20	" ..	37516	W. P. C. Pullock, Hill Crest.	1 " ..	25	M. Erwin		5·96	52·0	
" 20	" .	37517	Hutchinson & Co., Hill Crest.	1 " ..	30	Pincher Creek Dairy Co.		9·80	52·0	
" 20	" ..	37518	W. W. Walsh, Vancouver.	1 " ..	30	Not known.		8·36	53·5	

"	20	"	..	37519	F. R. Stewart, Vancouver	1	"	..	25	"		9 06	52·1
"	20	"	..	37520	Kelly, Douglas & Co., Vancouver.	1	"	..	25	"		7·28	57·8

DISTRICT OF VICTORIA—D. O'SULLIVAN, INSPECTOR.

Nov.	18	Butter.	..	39207	Windsor Grocery Co., Victoria, B.C.	1	lb	..	30	B. Wilson & Co., Victoria, B.C.	Dairy cooking butter	9 60	52·0
"	18	"	..	39208	The Saunders Grocery Co., Ltd., Victoria, B.C.	1	"	..	30	S. M. O'Kell & Co., Victoria, B.C.	"	12·92	52·3
"	19	"	..	39209	Harrison & MacDonald, Victoria, B.C.	1	"	..	35	B. Wilson & Co., Victoria, B.C.	Creamery	12·00	52·0
"	19	"	..	39210	The West End Grocery Co., Ltd., Victoria, B.C.	1	"	..	35	T. Parker, Metchosin, V.I.	Farm.	11·70	51·0
"	19	"	..	39211	Fred Carne, Victoria, B.C.	1	"	..	30	F. R. Stewart & Co., Victoria, B.C.	Dairy	10 20	51·5
"	20	"	..	39212	Jalland Bros., Victoria, B.C.	1	"	..	30	B. Wilson & Co., Victoria, B.C.	Dairy cooking butter	6 90	51 0
"	20	"	..	39213	Acton Bros., Victoria, B.C.	1	"	..	30	Henry Moss, Victoria, B.C.	"	5·70	51·0
"	20	"	..	39214	The Victoria Rochdale Co-op. Association, Ltd., Victoria, B.C.	1	"	..	40	A. McLennan, Salt Spring Island	Farm	9·30	50·5
"	20	"	..	39215	Wm. B. Hall, Victoria, B.C.	1	"	..	30	B. Wilson & Co., Victoria, B.C.	Dairy cooking butter	7·50	51·5
"	23	"	..	39216	Copas & Young, Victoria, B.C.	1	"	..	25	S. M. O'Kell & Co., Victoria, B.C.	"	9 50	52·0
"	23	"	..	39217	W. Speed, Victoria, B.C.	1	"	..	35	D. Naismith & Co., Vancouver, B.C.	Creamery	11·56	52·1
"	23	"	..	39218	Dixi H. Ross & Co., Victoria, B.C.	1	"	..	25	B. Wilson & Co., Victoria	Dairy cooking butter	11·20	51·1
"	24	"	..	39219	Scott & Peden, Victoria, B.C.	1	"	..	35	" "	Creamery	13·66	51·1
"	24	"	..	39220	J. Renouf, Victoria, B.C.	1	"	..	30	Patterson Bros., Victoria	Dairy cooking butter	9·12	52·0
"	25	"	..	39221	L. Dickson, Victoria, B.C.	1	"	..	30	B. Wilson & Co., Victoria	"	10·30	53·5
"	25	"	..	39222	John Ward, Victoria, B.C.	1	"	..	25	" "	"	10·80	52·0
"	27	"	..	39223	R. Erskine, Victoria, B.C.	1	"	..	30	Lewis & Sonley, Victoria	Dairy	7·04	52·0
"	30	"	..	39224	John Bros., Victoria, B.C.	1	"	..	30	B. Wilson & Co., Victoria	"	11 08	52·0
"	30	"	..	39225	H. Allnutt, Victoria, B.C.	1	"	..	25	" "	"	13·76	52·1
"	30	"	..	39226	Deavillee, Sons & Co., Victoria, B.C.	1	"	..	30	" "	"	9 40	52·0

APPENDIX U.

BULLETIN No. 171—CHEESE.

OTTAWA, Jan. 11, 1909.

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR,—I beg to hand you a report of work done upon 237 samples of cheese collected throughout Canada in October of last year. All the inspectoral districts are represented in this collection, which with the exception of two samples of skim-milk cheese (Nos. 845 and 35756) consists of ordinary Canadian, whole milk cheese. Since no standards have been established regarding this article, it is impossible to classify the samples herein reported, as above or below a normal. But the report is not on that account, without interest and value.

The fact that, in a collection of 237 samples of cheese, only two samples of skim-milk cheese were obtained, would seem to imply that the sale of skim-milk cheese is relatively unimportant in Canada; a very satisfactory state of things, since the demand for cheap and inferior articles of food is usually an indication of poverty on the part of consumers.

The collection is large enough to give value to the following generalizations, as regards water content in market cheese.

Inspection District.	Number of Samples.	Percentage of Water.		Mean.
		Maximum.	Minimum.	
Nova Scotia	15	32·76	20·08	26·47
Prince Edward Island	15	30·13	17·04	24·27
New Brunswick	15	32·60	23·24	26·89
Quebec	16	35·96	19·92	28·54
St. Hyacinthe	14	35·16	24·64	24·73
Montreal	15	34·08	13·60	28·17
Ottawa	15	34·92	23·28	28·89
Kingston	15	33·88	25·16	30·77
Toronto	15	33·28	22·12	27·09
London	21	31·20	17·92	25·57
Windsor	20	33·58	20·40	27·05
Manitoba	54	32·48	12·32	26·05
Calgary	15	28·80	16·92	23·53
Vancouver	15	32·20	23·68	28·28
Victoria	15	31·00	23·48	28·19
	235			27·00

The mean water content of Canadian whole milk cheese would therefore appear to be about 27 per cent by weight of the cheese. This is probably a little below the truth, since although the samples were wrapped in double parafined paper, and worked without unnecessary delay, it was inevitable that, an unknown, but probably quite small percentage of water should be lost by evaporation. This loss is probably not greater than that incident to such exposure as cut cheese receives, in ordinary retail selling.

On account of the variation of water content a statement of the weight per cent of fat in cheese conveys little useful information unless it is related to the dry matter of the cheese; that is, unless the water is taken into account. The column, in the accompanying table, headed 'Fat percentage on dry substance,' gives a datum from which we may infer the character of the milk employed in making the cheese. The following synopsis gives an interesting presentation of this phase of the subject:—

FAT, as a percentage on the dry cheese—

	Samples.
Fat, below 1 per cent on dry cheese	2
" from 32 to 40 per cent	8
" " 41 to 43 "	7
" " 44 to 45 "	40
" " 46 to 48 "	135
" " 49 to 50 "	31
" " above 50 "	11
	237

From this it appears that the great bulk of Canadian cheese contains from 44 to 48 per cent of fat, reckoned on the dry cheese. This is true of 175 samples now reported, or nearly 74 per cent of the entire collection. Of the remaining 26 per cent of the collection, 19 per cent contained above 48 per cent of fat.

The Department of Agriculture of the United States has enacted a standard for fat in cheese, reckoned on the dry substance requiring not less than 48 per cent if the cheese is to be recognized as 'Standard whole-milk Cheese, full Cream Cheese or Cream Cheese.' Judged by this standard only 31 per cent of the present collection could be correctly described as 'Standard whole-milk Cheese.'

A Bill which has been drawn up by a committee appointed for the purpose, at the twelfth Annual Convention of the Association of State and National Food and Dairy Departments, held at Chicago, and which is proposed to be adopted by the different state legislatures as a uniform food law, defines cheese as follows:—

'Cheese is the sound, solid, and ripened product made from milk or cream by coagulating the casein thereof with rennet or lactic acid, with or without the addition of ripening ferments and seasoning, and contains, in the water-free substance, not less than fifty (50) per cent of milk fat. Cheese may also contain added colouring matter.'

Examination for fats, other than butter fat, has been made in all of the samples now reported and no foreign fat has been found in any of them. This is pretty conclusive evidence that so called 'filled' cheese is not known in Canada.

The only former occasion upon which cheese has been systematically examined by this branch, was in 1888, and the results of work upon 48 samples is published in Bulletin No. 6. of that year. The inspection in question had special regard to the introduction of foreign fats into cheese; and the results proved that Canadian cheese was uniformly genuine in this respect.

The present report would seem to indicate that 30 per cent of water is a reasonable limit in ripened cheese; and I would respectfully suggest the legal adoption of 48 per cent of fat, reckoned upon the dry cheese, as a reasonable minimum for a standard whole-milk cheese.

I beg to recommend the publication of this report as Bulletin No. 171.

Yours truly,

A. McGILL,

Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF NOVA SCOTIA—			
1908.						
Oct. 13	Cheese	33701	J. F. Miles, Sydney, N.S.	1 lb.	17	Smith & Proctor, Sydney, N.S.
" 13	"	33702	A. D. Ingraham, Sydney, N.S.	1 "	17	" "
" 15	"	33703	A. F. Ross & Co., Truro	1 "	18	Unknown
" 15	"	33704	H. W. Ryan, Truro	1 "	13	F. W. Fearman, Toronto, Ont.
" 16	"	33705	Boggs Bros., Kentville, N.S.	1 "	15	F. W. Fearman, Hamilton, Ont.
" 17	"	33706	Shand Bros., Windsor, NS	1 "	18	R. B. Seeton & Co., Halifax, N.S.
" 19	"	33707	W. J. Forrestall & Co., Halifax, N.S.	1 "	18	Smith & Proctor, Halifax, N.S.
" 19	"	33708	J. L. Archibald & Son, Halifax, N.S.	1 "	18	Bauld Bros., Halifax, N.S.
" 19	"	33709	Dillon Bros., Halifax, N.S	1 "	20	Smith & Proctor, Halifax, N.S.
" 20	"	33710	Jas. McGregor, Halifax, N.S.	1 "	16	Unknown
" 20	"	33711	O'Neil & Melcahey, Halifax, N.S.	1 "	17	"
" 20	"	33712	Larder, Hubley & Co., Halifax, N.S.	1 "	20	B. H. Power, Halifax, N.S.
" 21	"	33713	R. N. McDonald, Halifax, N.S.	1 "	17	" "
" 21	"	33714	T. F. Courtney & Co., Halifax, N.S.	1 "	18	Smith & Proctor, Halifax, N.S.
" 21	"	33715	W. J. Hubley Halifax, N.S.	1 "	18	Nickerson & Hart, Halifax, N.S.
			DISTRICT OF PRINCE EDWARD ISLAND—			
Oct. 28	Cheese	31366	J. W. Morrison, North Tryon	1 lb.	16	Emerald Cheese Factory, Emerald.
" 28	"	31367	M. Delaney, North Tryon	1 "	16	Emerald Dairy Co., Emerald.
" 29	"	31368	R. H. Cameron, Crapaud	1 "	16	Carvell Bros., Charlottetown
" 30	"	31369	Leslie Worth, Charlottetown	1 "	16	J. A. Farquharson, Charlottetown.
" 30	"	31370	P. Duffy, Charlottetown	1 "	18	A. J. Biffin, Charlottetown
Nov. 4	"	31371	McLeod & Johnson, Charlottetown.	1 "	16	Auld Bros., Charlottetown
" 5	"	31372	J. H. Myrick, Alberton	1 "	14	Alma Cheese Factory, Alma.
" 6	"	31373	D. D. Campbell, O'Leary	1 "	16	A. J. Thompson, Bloomfield.
" 6	"	31374	Sinclair & Stewart, Summerside.	1 "	16	Egmont Bay Cheese Factory, Egmont.
" 7	"	31375	W. H. Leslie, Kensington	1 "	16	Kensington Cheese Factory, Kensington.
" 13	"	31376	Wm. Sharam, Murray Harbour	1 "	17	Battenburg & Co., Ltd., Charlottetown.
" 14	"	31377	D. A. McLeod, Murray River	1 "	16	Carvell Bros., Charlottetown
" 16	"	31378	A. D. Ross, Eldon	1 "	15	Orwell Cheese Factory, Orwell.

SESSIONAL PAPER No. 14

CHEESE.

Inspector's Report.	Results of Analysis. Water.	Fat.	Total Ash.	Salt in Ash.	Curd by Difference.	Reading of Butyro-refractometer at 25° C.	Fat, per cent on dry Substance.	Remarks and Opinion of the Chief Analyst.
R. J. WAUGH, INSPECTOR.								
	p. c.	p. c.	p. c.	p. c.	p. c.		p. c.	p. c.
	20·08	38·80	4·16	1·63	36·96	53·0	48·55	
	24·44	38·44	3·34	0·83	33·78	53·0	50·87	
	27·88	32·48	3·46	1·10	36·18	52·9	45·01	
	22·04	36·92	3·00	0·48	38·01	52·6	47·36	
	27·92	33·40	3·06	0·56	35·62	52·5	46·34	
	21·36	29·64	4·12	1·39	44·88	52·2	37·69	
	29·00	33·44	3·66	1·06	33·90	52·5	47·24	
	24·48	36·12	3·66	1·11	35·74	51·5	47·83	
	27·96	34·80	2·68	0·67	34·56	51·0	48·30	
	32·76	31·12	3·64	1·19	32·48	52·5	46·28	
	26·84	35·96	3·36	1·04	33·84	52·5	49·15	
	25·72	36·52	3·00	0·69	34·76	53·0	49·17	
	28·24	35·36	3·64	1·17	32·76	53·0	49·28	
	31·24	32·48	2·92	0·48	33·36	53·0	47·24	
	21·12	38·36	3·34	0·99	34·18	50·8	50·55	
T. MOORE, INSPECTOR.								
Sample from cut Cheese in store.	17·04	40·92	3·96	1·16	38·08	53·0	49·32	
Sample as sold to customers..	24·88	36·20	3·58	0·87	35·34	51·7	48·19	
Sample taken from cheese exposed for sale.	17·12	38·80	4·28	1·22	39·80	52·0	46·81	
Sample taken from cut cheese in store.	22·28	39·68	3·04	0·85	35·00	52·7	51·06	
From cheese as sold in store .	18·56	41·74	3·40	1·17	36·30	52·2	51·49	
Sample as sold in store... ..	19·00	38·36	3·90	1·06	38·74	51·7	47·37	
Sample from cut cheese in retail store.	27·68	35·00	3·24	0·96	34·08	51.5	48·39	
Sample of cheese as exposed for sale in store.	24·00	35·20	4·10	1·26	36·70	52·7	46·31	
" " .	30·13	33·44	4·00	1·15	32·43	52·7	47·86	
Sample from Mr. Leslie, Manager of Factory.	25·08	36·20	4·00	0·77	34·72	52·8	48·32	
Sample taken as sold to customers.	28·88	28·68	3·20	0·92	39·24	52·7	40·32	
Sample from cheese exposed for sale.	27·06	33·20	3·28	0·98	36·46	51·5	45·50	
Sample as sold to customers..	29·20	31·20	3·10	0·64	36·50	52·0	44·07	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF PRINCE EDWARD ISLAND—			
1908.						
Nov. 18	Cheese.....	31379	F. White, Charlottetown.....	1 lb..	18	Carvell Bros., Charlottetown..
" 18	"	31580	Ewen Cameron, Charlottetown..	1 " ..	18	Dillon & Speltell, Charlottetown
			DISTRICT OF NEW BRUNSWICK—			
Oct. 14	Cheese	29799	John Cogger, St. John, N.B.....	1 lb..	20	G. E. Barbour Co., Ltd., St. John, N.B.
" 14	"	29800	H. M. Saunders, St. John, N.B..	1 " ..	20	Northrup & Co., St. John, N.B.
" 15	"	29801	M. & H. Gallagher, St. John, N.B	1 " ..	22	Joseph Campbell, Newtown, N.B.
" 15	"	29802	Albert E. Trentowskey, St. John, N. B.	1 " ..	20	A. F. McLaren Cheese Co., Toronto.
" 15	"	29803	W. L. Hogan, St. John, N.B ..	1 " ..	20	Jones & Schofield, St. John, N.B.
15	"	29804	Day & Crabb, St. John, N.B...	1 " ..	18	F. W. Fearman & Co., Hamilton, Ont.
" 15	"	29805	Charles F. Francis & Co., St. John, N.B.	1 " ..	18	James Campbell, Sussex, N.B.
5	"	29806	W. B. McKay & Co., Sussex Kings Co., N.B.	1 " .	20	Maritime Dairy Co., Sussex, N.B.
6	"	29807	H. T. Brewster, Moncton, N.B..	1 " ..	20	F. P. Reid & Co., Moncton, N.B.
7	"	29808	M. Bannon, Newcastle, N.B.....	1 " ..	20	F. W. Fearman & Co., Hamilton, Ont.
10	"	29809	B. M. Moran, Chatham, N.B....	1 " ..	20	A. F. Randolph & Son, Chatham, N.B.
" 18	"	29810	J. McKnight, Fredericton, N.B..	1 " ..	20	" " ..
" 19	"	29811	W. S. Skillen, Woodstock, N.B..	1 " ..	23	" " ..
" 21	"	29812	T. D. Sadler, Perth, N.B	1 " ..	16	" " ..
" 21	"	29813	D. R. Bedell, Andover, N.B.....	1 " ..	20	Baird & Peters, St. John, N.B.
			DISTRICT OF QUEBEC—			
Oct. 16	Cheese	34450	Amédé Plourde, L'Islet..	1 lb..	16	J. B. Thibodeau & Cie, Quebec
" 16	"	34453	Irénée Allard, L'Islet..... ...	1 " ..	16	Emond & Coté, Quebec.....
" 16	"	34456	O. Corbeanneur, L'Islet Station...	¾ " ..	10	" " .....
" 21	"	34467	L. H. Levasseur, Rivière du Loup	1 " ..	16	Florentine Soucy, Olacro... ..
" 21	"	34468	" . .	1 " ..	35	F. Dupont, Rotterdam, Holland
" 21	"	34473	Martin Damien, Rivière du Loup	1 " ..	20	J. B. Thibadeau, Quebec.....
" 21	"	34475	Joseph Viel, Rivière du Loup....	1½ lb..	19	J. B. Renaud & Co., Quebec...
" 21	"	34476	J. E. Pineau, Rivière du Loup. .	1¼ " ..	22	" " ..

SESSIONAL PAPER No. 14

CHEESE.

Inspector's Report.	Results of Analysis.							Remarks and Opinion of the Chief Analyst.
	Water.	Fat.	Total Ash.	Salt in Ash.	Curd by Difference.	Reading of Butyro-refractometer at 25° C.	Fat, per cent on dry Substance.	
T. MOORE, INSPECTOR —*Concluded.*								
	p.c.	p.c.	p.c.	p.c.	p.c.		p.c.	p.c.
Sample from box on counter	24 36	33·00	3·44	0 73	39 20		51 5	43 63
Sample from lot as sold retail.	28 92	31 68	3 36	0 73	33 04		52 3	48 79
J. C. FERGUSON, INSPECTOR.								
Cut from cheese in store	23 24	31 40	3 74	1 08	38 62		52 1	44 81
" "	29 36	32 92	2 90	0 67	35 82		53 0	46 66
" "	24 80	35 88	3 10	1 03	37 22		51 8	47 09
" "	28 80	28 80	2 74	0 47	39 66		51·5	40 47
" "	32 60	31 48	3 50	1 03	32 42		52 5	46 69
" "	28 52	32 68	2·88	0 57	35 92		52 1	45 72
" "	27 76	34 24	3 60	1 36	34 40		51 8	47 39
" "	24 72	37 12	3 54	1 09	31 62		52·4	49 31
" "	23 64	36 28	3 84	1 26	36 24		52·6	47 51
" "	24 28	35 24	3 50	0 77	36 98		52 6	46 54
" "	26 80	33 72	4 10	0 95	35 38		51 6	44 69
New Brunswick cheese	24 28	35 96	3 88	1 07	35 88		51·3	47 49
	29 32	34 28	2 04	0 64	34 36		53 0	48 49
	25 80	37 80	2 80	0 76	33 60		52 2	50 94
	30 40	32 08	2 98	0 64	34 54		51·2	46 09
E. BELAND, INSPECTOR.								
	23·24	42 68	3·36	1 09	30·72		52·5	55 60
	30·96	32 96	3·74	0·39	32·34		52 8	47 74
	32 60	33·60	2 10	0·39	31 70		52·8	49 85
	19·92	36 40	3 12	0 66	40·56		51 5	45 45
	23·28	31 44	5·36	2·85	39·92		53 5	40·98
	32·44	31·64	3·20	0·74	32·72		52·3	46 83
	28 00	36·04	2·90	0 45	33·06		52·0	50·05
	35·96	26 28	2·78	0 53	34 98		52·3	41·04

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF QU EBEC—
1908.						
Nov. 5	Cheese.....	34484	Francois Bourgoin, Tadousac ..	1 lb ..	15	Thod Demeull, Tadousac.....
" 6	"	34487	Cyrile Avrey, Pointe du Persil...	1 " ..	16	Elzar Poherres, St. Fidéle.....
" 9	"	34489	Alfred Larouche, Murray Bay...	1 " ..	17	Evangeline Dufour, Murray Bay
" 9	"	34495	Joseph Brassard, Murray Bay. ..	1 " ..	16	" " ..
" 10	"	34496	N. Desylva, Murray Bay	1 " ..	16	" " ..
" 10	"	34497	Elie Harvey, Murray Bay.....	1 " ..	15	" " ..
" 10	"	34499	Jos. Couturier, Murray Bay.....	1 " ..	15	Jule Prodette, Murray Bay....
" 30	"	36802	N. Boisseau, Rue St. Joseph.....	1 " ..	17	Unknown ....
						DISTRICT OF ST. HYACINTHE—
Oct. 8	Cheese	832	G. Paulin, Montreal.....	12 oz..	12	Whyte Packing Co., Montreal.
" 8	"	833	Russell's Market, Montreal	17 " .	23	Olive, Dorion & Stroud, Montreal.
" 8	"	834	T. A. Wood & Co., Montreal....	1 lb ..	20	Whyte Packing Co., Montreal.
" 9	"	835	A. Manelli, 80 DeMontigny St., Montreal.	1 " ..	20	Gunn, Langlois & Co., Montreal
" 12	"	836	F. H. Chapleau, St. Agathe des Monts.	17 oz..	20	Jos. Bourgela, Montreal .....
" 13	"	837	E. E. Laflamme, St. Jerome.....	15 " .	16	Mr. Sauvageau, St. Jerome....
" 14	"	838	L. A. Perrault, Joliette.....	18 oz..	18	J. J. Sournis, Joliette.....
" 14	"	839	Belair & Paquette, St. Eustache..	2 oz..	20	Laporte, Martin & Cie., Montreal.
" 14	"	840	R. Manahan, St. Lin..... ...	17 " .	17	L. Chaput fils & Cie., Montreal.
" 15	"	841	P. Robert, Beaurivage Longue Pointe.	1 lb..	16	D. C. Brosseau & Cie., Ltd., Montreal.
" 16	"	842	A. July, Lachine	1 " ..	15	Mathews, Fortier & Monette, Montreal.
" 22	"	843	J. N. Primeau, Ahuntsic	1 " ..	16	A. McCullough & Co., Montreal
" 29	"	844	Rowlan Hill & Co., Valleyfield..	1 " ..	20	Gunn, Langlois & Cie., Montreal
" 30	"	845	B. Ram, Montreal	1 cheese	10	Not known.....
" 30	"	846	R. Turner, Montreal.....	1 lb..	20	Whyte Packing Co., Montreal.
						DISTRICT OF MONTREAL—
Oct. 8	Cheese	32731	P. C. Lemoine, Sorel.....	1 lb.	16	L. Chaput fils & Cie., Montreal.
" 9	"	32732	U. S. Hetherington, Sherbroke..	1 " ..	18	Not given.....

CHEESE.

Inspector's Report.	Results of Analysis.							Remarks and Opinion of the Chief Analyst.
	Water.	Fat.	Total Ash.	Salt in Ash.	Curd by Difference.	Reading of Butyro-refractometer at 25 c.	Fat, per cent. on dry Substance.	
E. BELAND, INSPECTOR—*Concluded.*								
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
	27·92	36·20	2·68	0·86	32·20	51·1	50·22	
	27·60	36·52	3·54	0·61	32·32	50·4	50·44	
	29·20	33·72	3·54	1·00	33·54	51·1	47·62	
	30·12	33·08	3·04	0·99	33·76	52·3	47·31	
	29·60	34·40	3·00	0·99	33·00	51·8	48·87	
	25·60	36·08	2·56	0·80	35·76	52·1	48·52	
	27·72	34·64	3·54	0·90	34·10	50·8	47·92	
	32·56	24·32	2·36	0·84	40·76	51·3	36·06	
J. C. ROULEAU, INSPECTOR.								
	25·28	39·00	3·00	0·62	32·72	52·5	52·19	
Cut from 5 lb. lump	28·90	31·32	3·58	1·04	32·20	52·6	48·27	
" 10 "	33·06	31·38	3·82	0·65	31·71	52·3	46·88	
" 5 "	26·72	36·40	3·80	0·82	33·08	53·0	49·67	
" 5 "	24·92	35·48	4·21	1·30	35·36	52·6	48·41	
" 20 "	24·64	39·16	3·70	1·38	32·50	53·1	51·96	
" 10 "	35·16	28·88	3·06	0·57	32·90	52·3	43·61	
Cheese marked J. B. L., 1, 10, '08.	29·72	32·80	3·44	0·85	31·04	52·6	46·67	
Cut from a 10 lb. lump	25·76	32·96	3·42	0·61	37·86	52·8	44·39	
	31·68	32·16	3·24	0·89	32·92	52·3	47·07	
	24·88	36·68	3·60	0·62	34·84	52·5	48·83	
Cut from a 20 lb. cheese	28·40	34·44	2·68	0·42	34·48	51·8	48·10	
	28·72	34·52	3·04	0·87	33·72	51·5	48·43	
Made by a process employed in Russia and other European Countries.	66·48	0·12	0·90	None	32·50	53·2	0·36	Fromage Blanc
Cut from a 20 lb. lump	30·48	32·16	2·50	0·39	34·68	51·6	46·27	
J. J. COSTIGAN, INSPECTOR.								
	32·48	31·48	3·08	0·73	32·96	53·4	46·62	
	31·60	34·74	3·20	0·99	30·46	53·5	50·79	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF MONTREAL—			
1908.						
Oct. 9	Cheese.....	32733	N. Lacroix, Sherbroke.	1 lb ..	20	L. Corriveau, Magog, P.Q.....
" 10	"	32734	McRae Bros., Richmond, P.Q....	1 " ..	18	Seth Carr, Richmond, P.Q ....
" 10	"	32735	A. U. Beausoliel, Richmond, P.Q	1 " ..	20	Not known.....
" 13	"	32736	Gregorie et frere, St. Hyacinthe..	1 " ..	18	" .....
" 13	"	32737	H. Messier, St. Hyacinthe.	1 " ..	20	" .....
" 14	"	32738	J. O. Montplaisir, Drummondville, P.Q.	1 " ..	18	" .....
" 14	"	32739	J. N. Turcotte, Drummondville, P.Q.	1 " ..	18	Hudon Herbert, Montreal...
" 15	"	32740	Roberge&Roberge, Metford Mines	1 " ..	15	D. Raymond, Thetford, P.Q...
" 15	"	32741	Alphonse Blais, Metford Mines...	1 " ..	17	Not known .....
" 15	"	32742	Joseph Masson, Danville, P.Q...	1 " ..	17	A. Simard, Tingwick, P.Q.....
" 16	"	32743	F. W. Gibson, Danville, P.Q....	1 " ..	18	Not known.....
" 19	"	32744	A. E. D'Artois & fils, Farnham .	1 lb. 5 oz.	20	Joseph Brault, St. Alexandre, P.Q.
" 19	"	32745	J. Dagenais & Co., Farnham...	1 lb ..	17	Not given .....
			DISTRICT OF OTTAWA—			
Sept. 30	Cheese	22724	P. A. McLaurin, Vankleek Hill..	1 lb ..	17	Aberdeen Factory, Vankleek Hill.
" 30	"	22725	W. George, Eganville.....	1 " ..	15	J. L. McKibbon, Eganville....
Oct. 3	"	22726	L. M. Davidson, Kemptville.....	1 " ..	20	McFadden, South Gower.....
" 6	"	22727	John McKinnon, Almonte.....	1 " ..	15	Ingersoll Packing Co., Ingersoll, Ont.
" 7	"	22728	Stephen Pilon, Rockland.....	1 " ..	15	Not known.. . . ..
" 9	"	22729	Stewart Bros. Co., Penfrew. ...	1 " ..	17	C. L. McCready, Admaston, Ont.
" 10	"	22730	McDougall & Carr, Finch.....	1 " ..	15	Lorne McLean, Finch.....
" 12	"	22731	Mrs. P. Brankin, Ottawa	1 " ..	15	Lerner & Moyneur, Ottawa....
" 12	"	22732	Eustache Gougeon, Ottawa.....	2 " ..	16	Freedman, Ottawa. . .....
" 12	"	22733	S. Diamend, Ottawa	1 " ..	16	" .....
" 12	"	22734	Jos. P. Valiquette, Ottawa	1 " ..	17	Lerner & Moyneur, Ottawa....
" 12	"	22735	P. Lamoureux, Ottawa.....	1 " ..	18	" " .. .
" 12	"	22736	C. J. Neate, Ottawa	1 " ..	15	F. J. Castle Co., Ottawa . ....
" 12	"	22737	J. Johnston, Ottawa.....	1 " ..	16	Provost & Allard, Ottawa.....
" 15	" ...	22738	Carriere Bros., Ottawa	1 " ..	18	Lerner & Moyneur, Ottawa....

SESSIONAL PAPER No. 14

CHEESE—

Inspector's Report.	Results of Analysis.							Remarks and Opinion of the Chief Analyst.
	Water.	Fat.	Total Ash.	Salt in Ash.	Curd by Difference.	Reading of Butyro-refractometer at 25° C.	Fat, per cent on dry Substance.	
J. J. COSTIGAN, INSPECTOR—*Concluded.*	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
.....	34 08	29 11	3 00	0 69	33 81	53 5	44 16	
.....	28 44	35 96	2 70	0 76	32 90	51 3	50 25	
.....	30 96	33 72	2 76	0 57	32 56	51 1	48 84	
.....	28 88	33 60	3 60	0 97	33 92	50 1	47 24	
.....	27 32	35 72	3 44	0 99	33 52	50 2	49 15	
.....	31 56	32 24	3 24	0 85	32 96	50 2	47 10	
.....	26 76	37 20	2 16	0 31	33 88	52 6	50 79	
.....	27 84	36 60	3 52	1 17	32 04	52 7	50 72	
.....	22 72	34 72	3 70	0 97	38 86	50 6	44 93	
.....	22 76	36 88	3 08	0 71	37 28	52 6	47 75	
.....	13 60	40 28	3 60	1 24	42 52	53 6	46 62	
.....	32 64	34 00	3 22	0 72	30 14	52 3	50 48	
.....	31 00	35 04	2 90	0 90	31 06	52 5	50 78	
J. A. RICKEY, INSPECTOR.								
.....	25 30	34 86	3 46	1 24	36 38	52 6	46 39	
.....	28 26	33 42	3 96	1 35	34 56	52 8	46 58	
.....	28 10	27 84	3 76	1 18	40 30	52 4	38 72	
.....	25 82	33 88	3 66	0 76	36 64	52 3	45 67	
.....	26 86	34 70	3 62	1 30	34 82	52 0	47 44	
.....	30 00	31 80	3 88	1 06	34 32	53 0	45 43	
.....	31 00	28 08	3 12	1 18	37 42	52 9	40 69	
.....	32 40	33 50	2 62	0 97	31 42	52 5	49 56	
.....	24 14	35 08	3 74	0 85	36 74	51 2	46 43	
.....	30 20	35 52	2 44	0 40	31 84	52 5	50 60	
.....	23 28	30 68	3 90	0 80	42 14	52 2	39 99	
.....	34 92	32 30	2 64	0 77	30 14	52 5	49 63	
.....	30 80	33 40	4 00	1 11	31 80	50 8	48 27	
.....	28 84	32 76	3 28	0 85	35 12	52 2	46 04	
.....	33 24	31 60	3 18	0 97	31 98	53 0	47 34	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
						DISTRICT OF KINGSTON—
1908.						
Oct. 28	Cheese	36031	A. Glover, Kingston	1 lb.	17	J. Y. Parkhill, Kingston
" 28	"	36032	J. E. Purdy, Renfrew	1 "	17	" "
" 29	"	36033	Wm. Davies Co., Renfrew	1 "	20	" "
Nov. 2	"	36034	A. T. Kimmerly, Napanee	1 "	18	Thompson, Napanee
" 2	"	36035	F. H. Perry, Napanee	1 "	20	W. F. Gerow, Napanee
" 5	"	36036	R. Elvins, Belleville	1 "	18	Not known
" 2	"	36037	H. E. Fairfield, Belleville	1 "	20	Gunn's, Ltd., Montreal
" 2	"	36038	P. J. McGinness, Belleville	1 lb.	20	Sprague, Belleville
" 2	"	36039	Wallbridge & Clark, Belleville	1 "	16	F. Brenton, Belleville
" 2	"	36040	J. D. Harker, Belleville	1 "	20	Oak Leaf Norwood
" 2	"	36041	G. Person, Belleville	1 "	16	Silver Spring, Picton
" 2	"	36042	J. Panter, Belleville	1 "	17	F. Brenton, Belleville
" 2	"	36043	J. H. P. Young, Belleville	1 "	16	Sprague, Belleville
" 2	"	36044	G. Boyle, Bellevilie	1 "	16	W. S. Cook & Son, Belleville
" 2	"	36045	W. T. Patterson, Belleville	1 "	15	Gunn's Ltd., Toronto
						DISTRICT OF TORONTO—
Oct. 12	Cheese	36121	R. Burnett, Durham	1 lb.	17	J. Blyth, Verney, P.O.
" 13	"	36122	Brock MaCaulcy, Southampton	1 "	18	W. A. Fearman, Hamilton
" 13	"	36123	Falconer Bros., Port Elgin	1 "	19	A. M. Smith, London
" 14	"	36124	W. H. McFarlane, Paisley	1 "	20	Elliott & Marr Co., London
" 14	"	36125	John Hunstin, Mildmay	1 "	15	John Sloan & Co., Toronto
" 15	"	36126	Schwint & Muter, Hanover	1 "	16	Simpson Co., Guelph
" 15	"	36127	Halliday & Davies, Chelsey	1 "	17	J. K. Brown, Ethil P.O.
" 16	"	36128	T. C. Allan, Wiarton	1 "	15	McDugal & Lamon, Owen Sound
" 16	"	36129	A. W. McFaul, Owen Sound	1½ "	27	The Ingersoll Packing Co., Ingersoll.
" 19	"	36130	Jas. J. Rae, Shouffville	1 "	17	J. Wells, Eversley, P.O.
" 19	"	36131	H. Wright, Markham	1 "	20	F W. Humphrey, Toronto
" 20	"	36132	H. J. Gould, Uxbridge	1 "	20	Gunn's Ltd., Toronto
" 21	"	36133	Lock Radcliffe, Toronto	1 "	17	J. A. McLean Produce Co., Ltd. Toronto.

SESSIONAL PAPER No. 14

CHEESE.

Inspector's Report.	Results of Analysis.							Remarks, and Opinion of the Chief Analyst.
	Water.	Fat.	Total Ash.	Salt in Ash.	Curd by Difference.	Reading of Butyro-refractometer at 25° C.	Fat, per cent on dry Substance.	
JAS. HOGAN, INSPECTOR.								
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
	31 12	32 08	3 34	0·61	33 46	49 3	46 57	
	26 88	36 60	3 06	0 67	34·06	52 3	49 23	
	28 48	33 20	3 18	0 71	35 14	52 3	46 42	
	30 80	31 76	3 56	1 08	33 88	52 1	45 89	
	33 48	31 00	3 60	0 90	31 92	52 1	46 60	
	31 32	33 40	3 30	1 03	31 98	51 5	48 63	
	28 60	36 52	3 10	0 78	31 78	51 2	51 15	
	33 88	31·96	3 04	0 70	31 12	50 7	48 64	
	31 60	31 84	3 16	0 57	33 40	52·3	46 55	
	33 76	31 12	2 98	0·82	32 14	52 3	46 99	
	33 56	29·96	3 36	0 92	33 12	51 0	45 09	
	28 24	32 96	3 20	0 95	35 60	50 1	45 93	
	31 60	31 84	2 82	0 75	33 74	50·5	46 84	
	33 16	31 52	2 76	0 63	32 56	52 6	47 16	
	25 16	34 76	2 90	0 53	37 18	52·7	46 45	
H. J. DAGER, INSPECTOR.								
	31 56	33 08	3 10	0 76	32 36	50 7	48 34	
	33 28	31 20	3·10	0 71	32 42	49·8	46 75	
	30 28	32 80	4 01	0 84	32 88	51 3	47·05	
	26 08	34 20	3·28	0·71	36 44	53·1	46 26	
	24 40	35 36	3·28	0·74	36 96	53 5	46·77	
	22·12	39 28	3·81	0 98	34 76	52·4	50 41	
	21 24	33 80	4·24	1·08	37 72	53 5	44·60	
	27·20	33·20	3·42	1 04	36 18	52·1	45 60	
	27 76	32 56	2·80	0·53	36 88	52·1	45·07	
	27 44	35·20	3 60	1 12	33 76	52·4	48·51	
	23·68	36·08	3·34	0·63	36·90	49·3	47·28	
	24·00	38·66	3·46	1 04	33 98	52·5	50·73	
	27·00	35·60	3·22	0·62	34·18	53·3	48·77	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF TORONTO—			
1908.						
Oct. 22	Cheese.	36134	D. J. Forrest, Hamilton.....	1 lb..	17	A. W. Robertson, Mohak, P.O.
" 26	"	36135	H. Tolchord, Toronto...	1 " ..	20	Rutherford, Marshall & Co., Toronto.
			DISTRICT OF LONDON—			
Oct. 7	Cheese	30504	Alexander Bisset, Kincardine....	1 lb ..	15	Millerton Cheese Co., Bruce Co.
" 7	"	30505	R. A. Clinnie, Listowell.....	1 " ..	15	Wallace Cheese Factory, Wallace Township.
" 8	"	30511	Richard Smith, Seaforth	1 " ..	15	Elliot, Marr & Co., London ...
" 12	"	30518	T. Bleacom, Clinton.....	1 " ..	16	Geo. Watts & Co., Brantford..
" 18	"	30519	H. Wiltsie.....	1 " ..	17	White Packing Co., Stratford .
" 15	"	30526	L. Walsh, St. Mary's...	1 " ..	18	John Garvey, London.....
" 15	"	30528	Oman & Mallon, Stratford.. ...	1 " ..	17	Stratford Grocery, Stratford...
" 15	"	30530	Walsh Bros., Stratford	1 " ..	16	Thos. Balantine Co., Stratford.
" 15	"	30532	Jas. Lloyd, Stratford.....	3 cups	25	McLaurin Cheese Co., Toronto.
" 15	"	30535	Mr. H. Killoran, Stratford.....	3 " .	16	Not known.. ....
" 16	"	30539	M. Durkin, Mitchell.....	1½ " .	20	John Steacy, Willow Grove, Mitchell.
" 20	"	30541	Peter Dill	1½ " .	16	Stratford Grocery Co., Stratford.
" 21	"	30544	W. R. Davis, Hensall.....	1½ " .	25	Ingersoll Cream Cheese Co., Ingersoll.
" 21	"	30546	Carling Bros., Exeter]	1½ " .	13	Edward Adams, London . ..
" 22	"	30551	J. W. Ortwine, Hensall.....	1½ " .	16	T. B. Escott, London .....
" 5	"	30982	C. A. Nairn, Goderich	1½ " .	20	Mr. Fearman, Hamilton.....
" 5	"	30983	McEwan Bros., Goderich.... ..	1½ " .	20	Glasco, McPherson & Co., Hamilton.
" 5	"	30986	W. L. Lindsay, Goderich.. ...	1½ " .	15	Edward Adams & Co., London
" 6	" . .	30991	Jas. Cutt, Blyth	1½ " .	18	Stratford Grocery, Stratford...
" 6	"	30998	Ker and Bird, Wingham.....	1½ " .	15	Geo. Watts & Son, Brantford.
" 7	"	31000	Edward Renker, Kincardine.....	1½ " .	20	Mains & McCallim, Kincardine
			DISTRICT OF WINDSOR—			
Oct. 7	Cheese	34609	Mrs. T. Boug, London..... ..	1 lb ..	16	Scandrett Bros., London . ...
" 8	"	34613	H. Geach, London.....	1 " ..	17	Not known..... .....

SESSIONAL PAPER No. 14

CHEESE.

Inspector's Report.	Results of Analysis.							Remarks and Opinion of the Chief Analyst.
	Water.	Fat.	Total Ash.	Salt in Ash.	Curd by Difference.	Reading of Butyro-extractometer at 25° C.	Fat, per cent on dry Substance.	
H. J. DAGER, INSPECTOR—*Concluded.*								
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
	27·56	33·88	3·48	0·78	34·98	53·3	46·77	
	29·80	30·64	3·56	0·92	36·00	50·3	43·65	
T. KIDD, INSPECTOR.								
	25·92	34·00	2·98	0·46	37·10	52·7	45·89	
	27·48	32·92	3·76	0·94	35·84	52·1	45·39	
	29·72	35·08	3·30	0·68	31·80	51·3	49·91	
	29·28	31·28	3·60	0·68	32·84	52·0	48·47	
	26·12	34·44	3·60	1·05	35·84	53·0	46·61	
	30·08	30·84	3·88	0·61	35·20	52·5	44·10	
	27·92	33·76	3·60	0·53	34·72	51·6	46·84	
	31·20	22·16	2·74	0·22	33·90	52·1	32·20	
	29·56	31·72	3·40	0·68	35·32	51·2	45·03	
	28·68	32·72	3·28	0·48	35·32	52·8	45·88	
	26·08	33·72	3·56	0·84	36·61	53·0	45·75	
	21·92	35·20	3·56	0·75	39·32	52·8	45·09	
	29·32	31·20	3·40	0·98	36·08	52·8	44·14	
	22·40	36·08	3·40	0·80	38·12	50·5	46·49	
	20·56	32·56	3·44	0·66	43·44	52·5	40·99	
	23·32	33·52	3·44	0·54	39·72	51·5	43·71	
	24·80	34·24	3·24	0·52	37·72	53·0	45·53	
	22·04	34·36	4·14	0·83	39·46	51·0	44·08	
	24·88	33·72	4·20	0·74	37·20	52·4	44·88	
	27·80	32·36	2·76	0·55	37·08	51·2	44·82	
	17·92	39·52	4·40	0·94	38·16	51·1	48·15	
JOHN TALBOT, INSPECTOR.								
Cut from cheese in store	33·58	30·42	3·66	0·83	32·33	52·2	45·79	
"	28·80	31·84	3·92	0·97	35·42	52·0	44·72	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF WINDSOR—
1908.						
Oct. 8	Cheese	34617	Mrs. J. T. Odell, London	1 lb.	16	Scandrett Bros., London
" 8	"	34622	E. & O. Boug, London	1 "	16	" "
" 8	"	34625	Mrs. Pugh, London	1 "	16	Not known
" 14	"	34637	J. S. Gesner, Ridgetown	1 "	16	M Masurett & Co., London
" 15	"	34640	A. Campbell, Leamington	1 "	15	J. T. Smyth & Co., Windsor, Ont.
" 15	"	34641	Robinson Bros., Leamington	1 "	19	" "
" 15	"	34642	P. Phillips, Leamington.	1 "	16	M. Masurett & Co., London
" 15	"	34643	R. Wigle & Co., Leamington	1 "	16	Geo. Watt, Brantford.
" 15	"	34647	Geo. McIntyre, Leamington	1 "	16	Not known
" 15	"	34650	E. R. Woodwiss, Kingsville	1 "	25	M. Masurett & Co., London
" 16	"	34655	Frank Hutton, Windsor	1 "	18	Ingersoll Packing Co., Ingersoll
Nov. 10	"	34663	W. E. Ross, St. Thomas	1 "	17	Edwin Finger, St. Thomas
" 10	"	34665	Steadman & Duncan, St. Thomas	1½ lb	24	A. M. Smith & Co., London
" 10	"	34671	Young & Caven, Aylmer, Ont	1 lb	16	Not known.
" 11	"	34675	W. J. Wilkins, Tillsonburg	1 "	15	Geo. E. Watts & Son, Brantford.
" 11	"	34680	Ray P. Colburn, Tillsonburg	1 "	16	Campbell Town Cheese Co., Tillsonburg.
" 18	"	34708	Thos. H. Janes, London South	1 "	14	E. Adams & Co., London
" 18	"	34709	Millson Trebelcock, London	1½ lb	20	A. M. Smith & Co., London
						DISTRICT OF MANITOBA—
Nov. 5	Cheese	35750	W. J. Barr, Neepawa	1 lb.	20	G. F. J. Galt, Winnipeg
" 6	"	35751	Broadfoot Bros, Gladstone.	1 "	20	A. Macdonald & Co., Winnipeg
" 10	"	35752	Hunter & Aitken, Boissevain	1 "	20	The Codville Co., Ltd., Winnipeg.
" 11	"	35753	W. M. Roller, Killarney	1 "	15	Mr. N. Clark, Killarney, Man.
" 11	"	35754	Hudson Bay Co., Deloraine	1 "	20	Not given
" 16	"	35755	G. French, Souris	1 "	20	"
" 18	"	35756	H. Cooperman, Brandon	1 "	10	S. Barosh, Wapella, Sask.
" 19	"	35757	C. W. Barkwell, Treherne	1 "	20	Foley, Lock, Larson, Winnipeg
" 19	"	35758	J. G. McGowan & Co., Treherne.	1 "	15	The Jobin Marrin Co., Winnipeg.
" 19	"	35759	W. F. Schooley, Holland	1 "	20	" "

SESSIONAL PAPER No. 14

CHEESE.

Inspector's Report.	Results of Analysis.							Remarks and Opinion of the Chief Analyst.
	Water.	Fat.	Total Ash.	Salt in Ash.	Cured by Difference.	Reading of Butyro-refractometer at 25° C.	Fat, per cent on dry Substance.	
JOHN TALBOT, INSPECTOR—*Concluded.*								
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
Cut from cheese in store... ..	30·80	32 60	3·48	0·83	33·12	53 3	47·11	
" ..	28·52	32 46	3·10	0 63	35 92	53·5	45 41	
"	33·14	26·14	3·08	0·74	36 64	53 5	39·09	
" ..	21 56	35 84	3 84	0·88	38 76	53 0	45·69	
" ..	24 32	33 88	3 40	0 61	38 40	52 3	44 77	
"	27·24	33 04	3·90	0 96	35·82	52 6	45 10	
" ...	29·16	33 36	2 74	0 63	34 74	52 5	47 09	
"	20 40	37 60	3 19	0·52	38 90	53·5	47 24	
" ..	26 12	38 56	3 28	0 74	32 04	51 8	52 19	
" ...	23 92	35·68	3·68	0 69	36 72	52 2	46 89	
"	30·20	31 24	2 96	0 76	35 60	53·0	41 76	
"	25 20	34 20	3 04	0 74	36 56	53·2	45 72	
.. ....	20 56	35·52	4 24	1 15	39 68	51 1	44 72	
.. ..	26 28	34 72	4 04	0·91	34 96	51 6	47 09	
.. ....	25 72	35·68	3·40	0 72	35 20	52 8	48 04	
" ..	27·96	32 32	3 74	0 84	35 98	52·7	44 87	
"	29 84	32·56	3 56	0·81	34 04	52 6	46·41	
" ..	26 76	34 92	2·66	0 88	35 66	53 0	47 68	
A. C. LARIVIÈRE, INSPECTOR.								
.. ..	14 96	42·60	3 66	0 78	38·78	51·1	59·09	
... ...	20 61	38·96	3·98	1 03	36 42	51 6	49·09	
.. ..	20·40	40·60	4 30	1·36	34 70	51 8	51·00	
.. ..	30·00	34 12	4·00	0 92	31 88	51·1	48 74	
.. ..	12 32	42 62	3·64	0·96	41·40	52 1	48 60	
.. ..	24·80	37·32	3·24	0 88	34·64	51·5	49 63	
... ...	56·76	0·32	2 96	1 38	39·96	52·5	00 74	
. ...	28 96	30·40	3·64	0·81	37 00	51·6	42·79	
.. . .	32 48	32·48	3·00	0 76	32·04	52·5	48 10	
....	26·80	36 76	2 44	0 35	34 00	51·9	50·22	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
						DISTRICT OF MANITOBA—
1908.						
Nov. 19	Cheese	35760	G. Barkwell, Holland	1 lb.	10	Not given
" 20	"	35761	J. W. Cambleford, Carman	1 "	26	Foley Bros. & Larson, Winnipeg.
Dec. 9	"	35762	G. T. Hoyer, Elmwood P.O., Winnipeg.	1 "	20	Not given
" 10	"	35763	R. L. Hood & Co., Oak Lake	1 "	20	"
" 11	"	35765	Mrs. E. Winkle, Winnipeg	1 "	20	A. MacDonald & Co., Winnipeg.
						DISTRICT OF CALGARY—
Nov. 16	Cheese	35431	Calgary Milling Co., Calgary	1 lb	20	Flavalle Bros., Lindsay, Ont
" 16	"	35432	J. A. Nolan, Calgary	1 "	20	Balfour & Smye, Hamilton
" 16	"	35433	Wood & Green, Calgary	1 "	20	C. R. Dickson & Co., Ltd., Calgary.
" 16	"	35434	P. J. Morrow, Calgary	1 "	20	Plunkett & Savage, Calgary.
" 16	"	35435	Fred Langston, Calgary	1 "	20	" "
" 16	"	35436	D. M. Roade, Calgary	1 "	20	C. R. Dickson & Co., Ltd., Calgary.
" 16	"	35437	J. Austin, Calgary	1 "	20	J. Y. Griffin & Co., Calgary
" 16	"	35438	Wiggins & Co., Calgary	1 "	20	" "
" 24	"	35439	H. W. Ireland, Medicine Hat	1 "	20	Balfour Smye & Co., Hamilton.
" 24	"	35440	Spencer & Todd, Medicine Hat	1 "	20	" "
" 24	"	35441	R. Dunn, Medicine Hat	1 "	20	" "
" 24	"	35442	Mrs. Brougham, Medicine Hat	1 "	20	J. Y. Griffin & Co., Calgary
" 24	"	35443	L. B. Cochran, Medicine Hat	1 "	20	Codville Co., Ltd., Winnipeg.
" 24	"	35444	Hudson Bay Co., Lethbridge	1 "	20	Hudson Bay Co.. Winnipeg.
" 24	"	35445	Bentley & Co., Lethbridge	1 "	20	F. W. Fearman & Co., Hamilton
						DISTRICT OF VANCOUVER—
Oct. 14	Cheese	37521	H. W. Jones, Epworth	1 lb	20	Melrose Falls, Cheese Co., Toronto.
" 14	"	37522	Main Grocery, Grandview	1 "	20	Not known
" 14	"	37523	Grandview Retail Store, Grandview.	1 "	20	W. J. McMillan & Co., Vancouver.
" 14	"	37524	A. E. Field, Grandview	1 "	20	Hudson Bay Co., Vancouver
" 15	"	37525	E. Hunt, Steveston, B.C	1 "	25	Not known
" 15	"	37526	Griggs & Co., Eburne, B.C	1 "	20	Kelly Douglas & Co., Vancouver

SESSIONAL PAPER No. 14

CHEESE.

Inspector's Report.	Results of Analysis.							Remarks and Opinion of the Chief Analyst.
	Water.	Fat.	Total Ash.	Salt in Ash.	Curd by Difference.	Reading of Butyro-refractometer at 55° C.	Fat, per cent on dry Substance.	
A. C. LARIVIERE, INSPECTOR—*Concluded.*								
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
	26·70	36·00	2·06	0·12	35·24	51·1	49·11	
	32·20	32·00	3·08	0·72	32·72	52·3	47·19	
	31·28	32·48	2·92	0·61	33·32	50·8	47·27	
	31·68	33·96	3·28	0·83	31·08	53·0	15·38	
	31·48	31·89	2·60	0·57	31·12	51·6	46·10	
R. W. FLETCHER, INSPECTOR.								
	17·12	39·08	4·24	1·24	39·56	51·8	47·15	
	19·36	37·80	3·66	0·71	39·18	52·6	46·88	
	22·52	36·80	3·92	0·90	37·76	51·2	47·49	
	25·20	35·32	3·92	0·99	35·56	52·1	47·22	
	16·92	38·40	3·84	0·92	40·84	51·5	46·22	
	17·24	41·16	3·98	1·35	37·62	52·8	49·73	
	23·68	35·72	4·00	0·77	36·60	53·0	46·72	
	23·12	39·80	3·62	1·13	33·46	52·5	51·77	
	26·00	29·16	3·78	1·10	41·06	52·8	39·40	
	27·08	31·16	3·32	0·91	35·41	52·8	46·84	
	27·52	34·08	4·24	1·11	34·16	52·7	47·92	
	24·20	34·72	3·86	0·97	37·32	51·5	45·80	
	27·12	35·08	3·82	1·12	35·98	52·5	48·13	
	27·04	34·52	3·56	0·63	34·88	52·5	47·31	
	28·80	33·60	2·71	0·64	34·86	53·0	47·19	
J. F. POWER, INSPECTOR.								
	29·28	32·00	3·64	0·57	35·08	53·0	45·25	
	26·56	32·44	4·08	0·85	36·92	52·5	44·17	
	29·84	30·68	2·92	0·66	36·56	53·0	43·73	
	25·96	32·20	3·74	0·75	38·10	53·0	43·49	
	30·68	31·72	3·62	0·78	33·98	52·2	45·76	
	28·00	32·36	3·04	0·48	36·60	52·0	44·94	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF VANCOUVER—			
1908.						
" 15	Cheese	37527	R. Sharffee.....	1 lb ..	40	Not known..... ....
" 15	"	37528	A. Murray, Mount Pleasant.....	1 " ..	20	Hudson Bay Co., Vancouver...
" 16	"	37529	C. A. Welsh, New Westminister.	1 " ..	20	Melrose Cheese Co.. .. ..
" 16	"	37530	E. S. Annandale, New Westminister.	1 " ..	20	Melford Cheese Co ... .
" 16	"	37531	West End Grocery, New Westminister.	1 " ..	20	Langley Cheese Co., Langley, B.C.
" 20	"	37532	F. Consuls, Cemetery Road.....	1 " ..	20	Kelley Douglas & Co., Vancouver.
" 20	"	37533	Bryant Grocery, South Vancouver	1 " ..	20	E. W. Leeson Co., Vancouuer..
" 20	"	37534	Ideal Grocery, Vancouver.....	1 " ..	20	Not known.. ....
" 21	"	37535	A. R. Stacey, North Vancouver..	1 " ..	20	N. Lemieux, St. Pierre, Man..
			DISTRICT OF VICTORIA—			
Nov. 18	Cheese	39227	Windsor Grocery Co., Victoria, B.C.	1 lb ..	25	J. Y. Griffin & Co., Vancouver, B.C.
" 18	"	39228	The Saunders Grocery Co., Ltd., Victoria, B.C.	1 " ..	20	R. G. Rithel & Co., Ltd., Victoria.
" 19	"	39229	Harrison & MacDonald, Victoria, B.C.	1 " ..	25	J. Y. Griffin & Co., Vanconver
" 19	"	39230	West End Grocery Co., Victoria, B.C.	1 " ..	25	R. G. Rithel & Co., Ltd., Victoria.
" 19	"	39231	Fred Carne, Victoria, B.C. .. .	1 " ..	25	F. R. Stewart & Co., Victoria..
" 20	"	39232	Jalland Bros., Victoria, B.C.....	1 " ..	20	J. Y. Griffin & Co., Vancouver
" 20	"	39233	Acton Bros., Victoria., B.C.....	1 " ..	25	F. R. Stewart & Co., Victoria..
" 20	"	39234	The Vic. Rochdale Co-op. Ass'n., Ltd., Victoria, B.C.	1 " ..	20	J. Y. Griffin & Co., Vancouver
" 20	"	39235	Wm. B. Hall, Victoria, B.C....	1 " ..	25	J. H. Todd & Son, Victoria....
" 23	"	39236	Copas & Young, Victoria, B.C...	1 " .	20	W. H. Malkin, Vancouver ....
" 23	"	39237	W. Speed, Victoria, B.C.... . .	1 " ..	25	J. W. Morris, Victoria.....
" 23	"	39238	Dixi H. Ross & Co., Victoria, B.C.	1 " ..	25	J. Y. Griffin, Victoria.....
" 24	"	39239	Scott & Peden, Victoria, B.C....	1 " ..	25	Naismith & Co., Vancouver....
" 24	"	39240	J. Renouf, Victoria, B.C.... ..	1 " ..	25	J. H. Todd & Sons, Victoria ..
" 25	"	39241	F. E. Plummer, Victoria, B.C. .	1 " ..	20	" " ..

SESSIONAL PAPER No. 14

CHEESE.

Inspector's Report.	Results of Analysis.							Remarks and Opinion of the Chief Analyst.
	Water.	Fat.	Total Ash.	Salt in Ash.	Curd by Difference.	Reading of Butyro-refractometer at 25° C.	Fat, per cent on dry Substance.	
J. F. POWER, INSPECTOR—*Concluded.*								
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	
	26·24	30·48	3·72	0·56	39·56	51·4	41·32	
	26·88	29·96	3·08	0·39	40·08	52·4	40·97	
	30·96	32·12	4·08	0·90	32·84	51·7	46·52	
	27·20	31·36	4·34	0·66	37·10	49·5	43·08	
	27·68	31·52	3·58	0·85	37·22	53·4	43·58	
	29·60	30·20	3·56	0·77	36·64	52·1	42·89	
	29·64	30·96	4·00	0·97	35·40	52·0	44·00	
	32·20	29·88	3·64	1·02	34·28	51·4	44·07	
	23·68	38·00	3·94	0·92	34·28	50·7	49·79	
D. O'SULLIVAN, INSPECTOR.								
	27·20	41·28	3·72	0·65	27·80	50·9	56·70	
	24·88	34·24	3·50	0·65	37·38	52·8	45·58	
	26·24	35·04	3·36	0·78	35·36	52·4	47·50	
	28·12	33·60	3·08	0·76	35·20	53·0	46·74	
	29·60	32·20	3·12	0·40	35·08	52·3	45·74	
	28·16	32·00	3·12	0·72	36·72	50·9	44·54	
	29·96	32·00	3·36	0·75	34·68	52·6	45·69	
	28·60	31·75	3·44	0·79	36·21	51·9	44·47	
	30·68	28·72	3·28	0·70	37·32	52·3	41·43	
	28·48	33·80	2·90	0·81	34·82	50·0	47·26	
	28·20	34·88	3·00	0·75	33·92	52·0	48·58	
	28·36	32·96	3·52	0·92	35·16	50·7	46·00	
	31·00	29·00	3·60	0·82	36·40	50·8	42·03	
	29·68	32·92	3·44	1·00	33·96	52·5	46·81	
	23·48	36·08	3·62	1·06	36·82	50·2	47·15	

APPENDIX V.

BULLETIN No. 172—GROUND COFFEE.

Ottawa, January 18, 1909.

W. J. Gerald, Esq.,
Deputy Minister of Inland Revenue.

Sir,—I beg to hand you a report upon 449 samples, purchased by our inspectors throughout the Dominion as ground coffee in October last. The following synopsis give a concise statement of the results of analysis, which will be found *in extenso*, in the accompanying table.

Inspectoral District.	Genuine.	Adulterated.	Sold as Compound	Total.
Nova Scotia	20	8	2	30
Prince Edward Island	22	3	5	30
New Brunswick	30	0	0	30
Quebec	16	14	0	30
St. Hyacinthe	26	4	0	30
Montreal	27	2	1	30
Ottawa	26	3	1	30
Kingston	26	4	0	30
Toronto	26	4	0	30
London	28	1	0	29
Windsor	29	1	0	30
Manitoba	29	0	1	30
Calgary	30	0	0	30
Vancouver	29	1	0	30
Victoria	27	0	3	30
	391	45	13	449

Of the collection in question there are found :

	Per cent.
Genuine	87·1
Adulterated	10·0
Sold as Compound	2·9
	100·0

Adulteration consists, as on former occasions, of addition of roasted cereals, or of chicory, or of both cereals and chicory to coffee, without acknowledgment of the fact.

The last previous inspection of ground coffee was made in January, 1904, and the results are published in Bulletin No. 100.

These are briefly as follows:—

	Samples.
Genuine	45
Adulterated	19
Doubtful	8
Sold as Compound	3
Total	75

The genuine samples formed 60 per cent of the whole collection, as contrasted with 87·1 per cent genuine samples in the present collection. This would seem to indicate a great improvement in the matter of truthfulness to name so far as coffee is concerned, during the past five years.

It may be well to note that in 15 cases registered in the present report as adulterated under the Act, 21 cases are technically adulterated by containing chicory without acknowledgment of the fact; while 24 cases contain roasted grains, with or without chicory; no additions of foreign matter being acknowledged.

I think it fair to point out that while technical adulteration exists in both classes of cases, a very plausible defence, and one that carries a certain moral weight, may be set up for the unacknowledged presence of small percentages of chicory, while none at all can be advanced for addition of roasted cereals. Many coffee consumers are accustomed to using coffee containing small percentages of chicory, and would be likely to complain did their grocer fail to add the chicory. Hence the retail grocer becomes accustomed to such addition, and one can well understand how a subordinate may consider himself as doing no more than habit and duty require, in adding an ounce or so of chicory to the pound of coffee. He is only furnishing such an article as he believed his customer wanted.*

No such explanation can be given for addition of roasted grain to coffee; this is simply fraud, unless the addition be acknowledged.

I beg to recommend the publication of this report as Bulletin No. 172.

I have the honour to be, sir,

Your obedient servant,

A. McGILL,
Chief Analyst.

* While the plea suggested above may be urged with some plausibility where small percentage of chicory are present, it cannot be so urged in cases like No. 34427 (p. 10) and No. 34458 (p. 12) when more than 20 per cent is present.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
						DISTRICT OF NOVA SCOTIA—
1908.						
Oct. 13	Ground Coffee..	33758	F. J. Moxley, Sydney, N.S...	1 " ..	30	Chase & Sanborn, Montreal..
" 13	" ..	33759	Crowell's, Ltd., Sydney, N.S..	1 " ..	25	Pure Gold Co., Toronto.....
" 15	" ..	33760	G. H. & R. Crow, Truro, N.S.	1 " ..	30	Chase & Sanborn, Montreal..
" 15	" ..	33761	Ryan Bros., Truro, N.S	1 " ..	40	" " ..
" 16	" ..	33762	Eaton & Co., Canning, N.S...	1 " ..	35	" " ..
" 17	" ..	33763	J. W. Dodge & Son, Windsor, N.S.	1 " ..	35	W. H. Schwartz & Son, Halifax, N.S.
" 17	" ..	33764	M. N. Davison, Windsor, N.S.	1 " ..	40	Chase & Sanborn, Montreal..
" 19	" ..	33765	W. J. Hopgood & Son, Halifax, N.S.	½ " ..	20	" " ..
" 19	" ..	33766	E. Donahoe & Son, Halifax, N.S.	½ " ..	15	Unknown.....
" 19	" ..	33767	J. D. Stewart, Halifax, N.S..	½ " ..	13	Chase & Sanborn, Montreal..
" 20	" ..	33768	H. L. Hallett, Halifax, N.S..	½ " ..	18	Bauld Bros., Halifax, N.S...
" 20	" ..	33769	R. B. Adams & Co., Halifax, N.S.	½ " ..	15	John Tobin & Co., Halifax,
" 21	" ..	33770	Knock & Nicolle, Halifax, N.S.	½ " ..	15	A. P. Torrens, Halifax, N.S.
" 21	" ..	33771	G. B. Maling & Co., Halifax, N.S.	½ " ..	15	Todhunter & Mitchell, Toronto, Ont.
" 21	" ..	33772	Creig & Hodgson, Halifax, N.S.	½ " ..	15	C. H. Cochrane, Ottawa.....
" 21	" ..	33773	G. E. Pullicover & Son, Halifax, N.S.	½ " ..	12	Unknown .....
" 21	" ..	33774	G. H. Emmett, Halifax, N.S.	½ " ..	10	" .....
" 21	" ..	33775	C. Davis, Halifax, N.S... .	½ " ..	15	" ... .
" 22	" ..	33776	W. P. Mosely, Dartmouth, N.S.	½ " ..	15	Bauld Bros., Halifax, N.S...
" 22	" ..	33777	A. Forsythe, Dartmouth, N.S.	½ " ..	15	A. P. Torrens, Talifax, N.S..
" 22	" ..	33778	E. M. Walker, Dartmouth, N.S.	½ " ..	20	Bower & Bartlett, Boston, Mass.
" 22	" ..	33779	A. W. Huxtable, Dartmouth, N.S.	½ " ..	15	Robt. Greig Co., Toronto....
" 22	" ..	33780	Colin McNab, Dartmouth, N.S.	½ " ..	15	A. P. Torrens, Halifax, N.S.
" 22	" ..	33781	B. O. Bishop, Dartmouth, N.S.	½ " ..	15	C. H. Cochrane, Ottawa.....
" 22	" ..	33782	S. Tomson, Dartmouth, N.S..	½ " ..	18	A. P. Torrens, Halifax, N.S.
" 22	" ..	33783	Wm. Moore, Halifax, N.S....	¼ " ..	13	" " ..
" 22	" ..	33784	Jas. Scott & Co., Halifax, N.S.	½ " ..	20	Chase & Sanborn, Montreal .
" 22	" ..	33785	J. R. Siteman & Co., Halifax, N.S	½ " ..	15	Unknown .....
" 22	" ..	33786	A. P. Torrens, Halifax, N.S..	½ " ..	20	A. P. Torrens, Halifax, N.S.
" 28	" ..	33787	J. P. Buckley, Halifax, N.S..	½ " ..	12	" " ..

SESSIONAL PAPER No. 14

COFFEE.

Inspector's Report.	Results of Analysis.			Remarks, and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent Extract.	Iodine Reaction for Starch.	
R. J. WAUGH, INSPECTOR.				
.....	.....	.....	None	Genuine.
.....	.....	.....	"	"
Not sold as high grade.....	.....	.....	"	"
Ground by vendor	.....	1·0094	"	"
"	.....	.....	"	"
.....	Roasted grain	.....	Starch.	Adulterated.
Ground by vendor	.....	.....	None...	Genuine.
.....	.....	.....	"	"
Not sold as pure coffee.....	.....	.....	"	Sold as compound.
.....	.....	1·0091	"	Genuine.
.....	Roasted grain and chicory...	.....	Starch.	Adulterated.
.....	.....	1·0102	None...	Genuine.
.....	Roasted grain	.....	Starch.	Adulterated.
Labelled special blend..	.....	1·0083	None...	Genuine.
.....	Chicory.....	1·0130	"	Contains from 15 to 20 p.c. chicory. Adulterated.
.....	.....	.....	"	Genuine.
.....	.....	.....	"	"
.....	.....	1·0098	"	"
.....	Roasted grain	.....	Starch.	Adulterated.
.....	"	.....	"	"
Ground by vendors	.....	.....	None	Genuine.
.....	.....	1·0086	"	"
Not sold as pure coffee..	Roasted grain..	.....	Starch.	Sold as compound.
Ground by vendors	.....	.....	None...	Genuine.
.....	.....	1·0090	"	"
.....	Roasted grain	.....	Starch.	Adulterated.
.....	.....	.....	None...	Genuine.
.....	.....	.....	"	"
.....	.....	.....	"	"
.....	Roasted grain	.....	Starch.	Adulterated.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF PRINCE EDWARD ISLAND—			
1908.						
Oct. 28	Ground Coffee..	31336	W. H. Hood, Tryon, P.E.I...	½ lb ..	14	Carvell Bros., Charlottetown.
" 28	" ..	31337	J. T. Lord, North Tryon	½ " ..	20	Dearborn & Co., St. John, N.B.
" 29	" ..	31338	D. S. McQuarrie, Crapaud....	½ " ..	19	Carvell Bros., Charlottetown.
Nov. 2	" ..	31339	Sanderson & Co., Charlottetown.	½ " ..	20	Sanderson & Co., Charlottetown.
" 2	" ..	31340	Jenkins & Son, Charlottetown.	½ " ..	20	Jenkins & Son, Charlottetown
" 2	" ..	31341	A. Gates & Co., Charlottetown	½ " ..	20	A. Gates & Co., Charlottetown.
" 2	" ..	31342	Stewart & Son, Charlottetown.	½ " ..	20	Stewart & Son, Charlottetown.
" 3	" ..	31343	R. F. Maddigan, Charlottetown.	½ " ..	20	R. T. Maddigan, Charlottetown.
" 4	" ..	31344	L. C. Worthy, Charlottetown.	½ " ..	20	L. C. Worthy, Charlottetown
" 4	" ..	31345	John Cameron, Charlottetown	½ " ..	15	Chase & Sanborn, Montreal..
" 4	" ..	31346	John Wheatley, Charlottetown	½ " ..	20	W. H. Schwarts & Son, Halifax.
" 5	" ..	31347	Thos. E. Birch, Alberton.....	½ " ..	15	Hudon, Hebert & Co., Montreal.
" 5	" ..	31348	Benj. Rogers, Alberton... ...	½ " ..	17	W. H. Schwarts & Son, Halifax.
" 6	" ..	31349	J. H. Myrick & Co., Tignish..	½ " ..	20	J. H. Myrick, & Co., Tignish
" 6	" ..	31350	H. W. Turner, O'Leary.....	½ " ..	16	Robt. Greig & Co., Ltd., Toronto.
" 6	" ..	31351	R. T. Holman & Co., Ltd., Summerside.	½ lb ..	20	R. T. Holman & Co., Summerside.
" 6	" ..	31352	F. W. Strong, Summerside ...	½ " ..	23	Chase & Sanborn, Montreal..
" 6	" ..	31353	W. Y. Lidstone, Summerside.	½ " ..	20	Snowdon, Forbes & Co., Montreal.
" 7	" ..	31354	J. H. Lock, Summerside... ..	½ " ..	20	Pure Gold Mfg. Co., Toronto
" 7	" ..	31355	W. G. Warren, Summerside..	½ " ..	20	H. Beer, Agent, Summerside
" 7	" ..	31356	Brace & McKay, Summerside.	½ " ..	18	Brown & Bartlett, St. John .
" 7	" ..	31357	J. H. Hynes, Kensington ..	½ " ..	16	N. Rattenbury, Charlottetown.
" 7	" ..	31358	R. Tuplin & Co., Kensington..	½ " ..	15	Carvell Bros., Charlottetown
" 13	" ..	31359	David Bull, Murray Harbour.	½ " ..	18	J. A. Farquharson, Charlotte-
" 14	" ..	31360	A. M. Ross, Murray River....	½ " ..	18	Laporte, Martin & Co., Montreal.
" 14	" ..	31361	J. D. Hunn, Murray River...	½ " ..	20	Pure Gold Mfg. Co., Toronto
" 14	" ..	31362	James H. C. Moore, Eldon....	½ " ..	20	Carvell Bros., Charlottetown.
" 18	" ..	31363	H. A. Dunbar, Charlottetown.	½ " ..	20	Maryell & Co., Toronto .....

SESSIONAL PAPER No. 14

COFFEE.

Inspector's Report.	Results of Analysis.			Remarks, and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent Extract.	Iodine Reaction for Starch.	
T. MOORE, INSPECTOR.				
Compound Java			None	Genuine.
			"	"
XXX Choice Java Mocha Coffee.	Chicory	1·0130	"	Contains from 15 to 20 p.c. chicory. Adulterated.
Coffee beans from Dearborn & Co., St. John, N.B.			"	Genuine.
Coffee beans from Chase & Sanborn, Montreal.			"	"
Coffee beans from Pure Gold Mfg. Co., Toronto.		1·0094	"	"
Coffee beans from Chase & Sanborn, Montreal.			"	"
" "			"	"
" "			"	"
			"	"
Halifax Steam Coffee and Spice Mills. Eng. breakfast coffee compound.	Roasted grain		Starch	Sold as compound.
			None	Genuine.
This coffee is mixed with other ingredients. Brand, "Mountain Jamaca"			"	Sold as compound.
Coffee beans from Pure Gold Mfg. Co.			"	Genuine.
Star Blend Coffee	Roasted grain		Starch	Adulterated.
Coffee beans from Chase & Sanborn, Mocha and Java			None	Genuine.
Under this seal coffee guaranteed for purity.			"	"
Guaranteed absolutely pure, a blend of selected coffees of highest grades.			"	"
Pure gold. A hand picked coffee.			"	"
			"	"
High grade coffee and teas, the taste tells.			"	"
XXX Choice Java and Mocha.			"	"
Choice Java and Mocha			"	"
Compound Java Coffee	Chicory	1·0114	"	Contains about 10 p.c. chicory. Sold as compound.
Perfect Blend Coffee	Roasted grain		Starch	Adulterated.
Sold only in original packages.			None	Genuine.
Old Government Java Coffee			"	"
Victoria Blend Coffee. Sold as a combination of coffee and chicory.			"	Sold as compound.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
			DISTRICT OF PRINCE EDWARD ISLAND—			
1908						
Nov. 18	Ground Coffee..	31364	P. L. Smallwood, Charlottetown.	½ lb..	20	W. H. Schwarts, Halifax, N.S.
" 18	" ..	31365	S. T. McLeod, Charlottetown.	½ " ..	20	Baker & Co., New York.....
			DISTRICT OF NEW BRUNSWICK—			
Oct. 7	Ground Coffee..	29769	Dearborn & Co., St. John, N.B.	½ lb..	25	Dearborn & Co., St. John, N.B.
" 7	" .	29770	H. W. Cole Co., Ltd., St. John. N.B.	½ " ..	20	H. M. Cole Co., Ltd., St. John, N.B.
" 7	" ..	29771	G. E. Barbour Co., Ltd., St. John, N.B.	½ " ..	20	G. E. Barbour Co., Ltd., St. John, N.B.
" 8	" ..	29772	James Moulson, St. John, N.B.	½ " ..	20	Vendor .. ..
" 8	" ..	29773	The 2 Barkers, Ltd., St. John,	½ " ..	25	Vendors.... ....
" 9	" ..	29774	Raymond MacKinnon, Fairville, St. John Co., N.B.	½ " ..	20	"Woods Boston Coffee"....
" 12	" ..	29775	H. R. Coleman, St. John, N.B.	½ " ..	20	Humphreys Roasted Bean...
" 12	" ..	29776	Charles A. Metz, St. John, N.B.	½ " ..	20	Bowman & Cole, St. John, N.B.
" 13	" ..	29777	Guy H. Humphrey, St. John, N.B.	½ " ..	20	Vendor ....
" 13	" ..	29778	E. M. Rowley, St. John, N.B.	½ " ..	20	Chase & Sanborn, Montreal, P.Q.
" 13	" .	29779	Mrs. A. M. Coday, St. John, N.B.	½ " ..	20	Baird & Peters, St. John, N.B.
" 13	" ..	29780	W. R. Small, St. John, N.B.	½ " ..	20	Chase & Sanborn, Montreal..
" 14	" ..	29781	John Henry Walker, St. John,	½ " ..	20	H. C. Edmonds Co., Boston, Mass.
" 14	" ..	29782	J. A. Lipsett, St. John, N.B.	½ " ..	20	" " ..
Nov. 5	" ..	29783	N. W. Eveleigh & Co., Sussex, King's Co., N.B.	½ " ..	20	C.H.Cochrane & Co.,Ottawa, Ont.
" 5	" ..	29784	Sussex Mercantile Co., Ltd., Petticodiac, N.B.	½ " ..	20	Chase & Sanborn, Montreal.
" 6	" ..	29785	Geo. A. Robertson, Moncton, N.B.	½ " ..	20	Bower & Bartlett, Boston, Mass.
" 7	" ..	29786	Miller Bros,, Newcastle, N.B.	½ " ..	20	Thomas Wood & Co., Montreal.
" 10	" ..	29787	J. B. Snowball Co., Ltd., Chatham, N.B.	½ " ..	20	Chase & Sanborn, Montreal..
" 11	" ..	29788	A. Normand des Brisay, Bathurst, N.B.	½ " ..	20	Bower & Bartlett, Boston ...
" 12	" ..	29789	Moones Bros., Campbellton, N.B.	½ " ..	20	C. H.Cochrane & Co., Ottawa
" 12	" ..	29790	B. N. Mowat, Campbellton, N.B.	½ " ..	20	Horace Cole & Co., St. John, N.B.
" 18	" .	29791	H. C. Jewett, Fredericton, N.B.	½ " ..	20	S. H. Ewing & Son, Montreal
" 18	" ..	29792	E. G. Hoben, Fredericton, N.B.	½ " ..	20	H. C. Edmonds Coffee Co., Boston.
" 19	" ..	29793	J. W. Dalling, Woodstock, N.B.	½ " ..	20	I. E. Teed, Woodstock, N.B.

SESSIONAL PAPER No. 14

COFFEE.

Inspector's Report.	Results of Analysis.			Remarks, and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent. Extract.	Iodine Reaction for Starch.	
T. MOORE, INSPECTOR—*Concluded.*				
English breakfast coffee compound.	Roasted grain		Starch	Sold as compound.
Bakers "Barrington Hall Brand," free from coffee dust and chaff.			None	Genuine.
J. C. FERGUSON, INSPECTOR.				
Diamond Jubilee Brand. Blend, Mocha and Java.			None	Genuine.
Ground by vendors, "Thistle Brand,"				
"Acorn Brand"				
Beans imported. Roasted and ground by vendor.				
Beans imported. Roasted and ground by vendors.				
" "		1 0091		
Ground by vendor		1 0087		
		1 0081		
Roasted and ground by vendor.		1 0097		
Brand, "Standard Java." Chase & Sanborn.				
Ground by vendors				
"				
Edmond's "Boston Coffee."		1 0096		
Ground by vendors as required.				
" "			"	
Ground by vendor		1 0087	"	
Ground by vendors			"	
" Blend, Mocha and Java.		1 0099	"	"
Ground by vendors			"	"
"			"	"
"			"	"
Diamond E Blend, ground by vendor.			"	"
Ground by vendors			"	"
Ground by vendor			"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
						DISTRICT OF NEW BRUNSWICK—
1908.						
Nov. 19	Ground Coffee..	29794	Townsend & Hayden, Woodstock, N.B.	½ lb.	20	Thos. Wood & Co., Boston..
" 21	" ..	29795	Geo. T. Baird Co., Ltd., Perth, N.B.	½ "	20	Bower & Bartlett, Boston, Mass.
" 21	" ..	29796	J. E. Porter & Son, Andover, N.B	½ "	20	G. E. Barbour & Co., Ltd., St. John, N.B.
" 23	" ..	29797	Jas. Burgess & Sons, Ltd., Grand Falls, N.B.	½ "	20	Chase & Sanborn, Montreal..
" 23	" ..	29798	P. Lagacy, Grand Falls, N.B.	½ "	20	G. E. Barbour & Co., St. John, N.B.
						DISTRICT OF QUEBEC—
Oct. 9	Ground Coffee...	34417	Jos. Gammond, St. Jean Pont Joli.	½ lb	20	A. E. Vallerand, Quebec..
" 10	" ..	34423	Moise Rosa, Trois Saumon....	½ "	20	Lavoie & Dion, Quebec .....
" 10	" ..	34425	Emile Cloutier, Trois Saumon.	½ "	20	A. Carrier & fils., Levis.....
" 10	" ..	34427	Arthur Caron, Trois Saumon..	½ "	15	W. D. Stroud&Son, Montreal
" 10	" ..	34430	Mad. Louis Morneau, St. Jean Pont Joli.	½ "	18	Joseph & Son, Quebec... . .
" 12	" ..	34434	Emile Blanchet, St. Aubert...	½ "	20	Lavoie & Dion, Quebec.....
" 12	" ..	34435	A. D. Arsenault, St. Aubert..	½ "	18	S. H. Ewing & Son, Montreal
" 13	" ..	34436	Felix Bélanger, St. Damasse..	½ "	15	Unknown..... .....
" 14	" ..	34437	Flavien Choinard, St. Pamphile	½ "	20	" ....
" 14	" ..	34438	Alfred Caron, St. Pamphile...	½ "	20	N. Turcotte & Cie., Quebec..
" 14	" ..	34439	Joseph Cloutier, St. Pamphile.	½ "	20	Lavoie & Dion, Quebec.....
" 15	" ..	34440	Sauveur Duval, Elgin Road...	½ "	15	S. H. Ewing & Son, Montreal
" 15	" ..	34441	Alphonse Levesque, St. Louise	½ "	15	N. Turcotte & Co., Quebec ..
" 15	" ..	34442	Arthur Marier, St. Louise....	½ "	15	" " ..
" 15	" ..	34443	A. Tardiff, St. Louise....	½ "	18	S. H. Ewing & Son, Montreal
" 15	" ..	34444	P. Hamel & Cie., Village des Aulnaies.	½ "	20	Lavoie & Dion, Quebec.....
" 15	" ..	34445	Magloire Francoeur, St. Roch des Aulnaies.	½ "	20	N. Turcotte & Cie., Quebec..
" 15	" ..	34446	Archile Marier, St. Roch des Aulnaies.	½ "	20	" " ..
" 15	" ..	34447	Mad. Archile Peltier, St. Roch des Aulnaies.	½ "	15	Leclerc & Letellier, Quebec..
" 16	" ..	34448	Elzear Caron, L'Islet...	½ "	13	Lavoie & Latulippe, Quebec..
" 16	" ..	34449	" "	½ "	20	" " ..
" 16	" ..	34451	J. A. Dionne, L'Islet.	½ "	20	N. Rioux & Cie., Quebec....
" 16	" ..	34452	Irénie Allard, L'Islet.....	½ "	18	J. B. Bedard, Quebec.....

SESSIONAL PAPER No. 14

GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent Extract.	Iodine Reaction for Starch.	
J. C. FERGUSON, INSPECTOR—*Concluded.*				
Ground by vendors			None	Genuine
Red Shield Brand, ground by vendors.		Whole coffee.		"
Acord Brand, ground by vendors.			None	"
"Seal Brand"		1·0090	"	"
"			"	"
E. BELAND, INSPECTOR.				
	Chicory	1·0116	None	Contains about 10 p. c. chicory. Adulterated.
	Roasted grain		Starch.	Adulterated.
			None.	Genuine.
	Chicory	1·0153	"	Contains from 25 to 30 p.c. Chicory. Adulterated.
			"	Genuine.
	Roasted grain and chicory		Starch.	Adulterated.
	Roasted grain.		"	"
	Roasted grain and chicory		"	"
			None.	Genuine.
			"	"
	Small amount of roasted grain.		Starch.	Adulterated.
	Roasted grain and chicory		"	"
			None.	Genuine.
			"	"
	Roasted grain.		Starch.	Adulterated.
	Small amount of roasted grain.		"	"
			None.	Genuine.
			"	"
	Chicory	1·0129	"	Contains from 15 to 20 p. c. chicory. Adulterated.
	Roasted grain.		Starch.	Adulterated.
	"		"	"
			None.	Genuine.
		1·0090	"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost		Name and Address of Manufacturer or Furnisher as given by the Vendor.
				Quantity.	Cents.	
						DISTRICT OF QUEBEC—
1908.						
Oct. 16	Ground Coffee..	34455	O. Corbonneau, L'Islet Station	½ lb...	20	Ed. Marceau, Ltd., Montreal
" 16	" ..	34457	Alphonse Lavoie, St. Eugene.	½ " ..	20	Langlois & Paradis, Quebec..
" 16	" ..	34458	Francois Déchêne fils., St. Eugene.	½ " ..	15	Turcotte & Frere, Quebec....
" 17	" ..	34459	J. F. M. Déchêne, St. Eugene.	½ " ..	20	" " ..
" 17	" ..	34460	Eugene Métivier, St. Cyrille..	½ " ..	13	N. Turcotte & Cie., Quebec..
" 17	" ..	34462	Irénée Lord, St. Cyrille.....	½ " ..	15	Unknown..... ... ..
" 17	" ..	34463	Charle Elore Caron, St. Aubert	½ " ..	20	Leclerc & Letellier, Quebec..
						DISTRICT OF ST. HYACINTHE—
Oct. 8	Ground Coffee..	801	G. Paulin, Notre Dame West, Montreal.	½ lb ..	18	J. A. Mathewson & Co., Montreal.
" 8	" ..	802	N. Vincent, 1093 St. Antoine W., Montreal.	½ " ..	20	....
" 8	" .	803	Russells Market, St. Catherine W., Montreal.	½ " ..	20	Chase & Sandborn, Montreal
" 8	" ..	804	T. A. Wood & Co., Montreal .	½ " ..	20	Tamiekande Tea Co., Montreal.
" 9	"	805	T. Elliott, Montreal	½ " ..	20	J. A. Mathewson & Co., Montreal.
" 9	" ..	806	C. Spector & Co., Montreal...	½ " ..	15	T. Wood & Co., Montreal....
" 12	" ..	807	Gideon Coté, St. Agathe des Monts.	½ " ..	20	L. Chaput fils & Co., Montreal.
" 13	" ..	808	J. B. Gougeon, St. Jerome....	½ " ..	20	Hudson & Orsali, Montreal..
13	" ..	809	D. Mure & Cie., St. Jérôme...	½ " ..	20	....
14	" ..	810	E. Joly, Joliette.....	7 oz..	14	J. J. Sournis, Joliette. ... .
" 14	" ..	811	J. J. Sournis, Joliette.... .	½ lb ..	20	Thos. Wood & Co., Montreal
" 14	" ..	812	J. A. Paquin, St. Eustache....	½ " ..	20	L. Chaput fils & Co., Montreal.
" 15	" ..	813	J. P. Lacroix, St. Lin.....	½ " ..	13	Aug. Comte & Cie., Montreal
" 15	" ..	814	K. Manahan, St. Lin..	½ " ..	18	Not known.. ....
" 15	" ..	815	D. Boyeur, St. Thérèse de Blainville.	½ " ..	20	" ....
" 16	" ..	816	J. N. Laurin, Beaurivage, Longue Pointe.	½ " ..	18	J. Boudrias, Montreal.....
" 16	" ..	817	A. McNeil, 440 Bourbonniere, Maisonneuve.	½ " ..	18	Not known..... ...

SESSIONAL PAPER No. 14

GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent. Extract.	Iodine Reaction for Starch.	
E. BELAND, INSPECTOR—*Concluded.*				
....	....	..	None	Genuine.
....	..	..	"	"
.....	Chicory	1·0179	"	Contains from 40 to 45 p. c. chicory. Adulterated.
....	...	1·0080	"	Genuine.
....	..	..	"	"
....	..	..	"	"
.	..	....	"	.
J. C. ROULEAU, INSPECTOR.				
..	..	..	None.	Genuine.
Owl Blend Coffee. The Vendor wrote the word Compound on the bag containing the coffee but did not state it was a mixture.	..	..	"	"
Ground by themselves and put in ½ lb. packages.	..	..	"	.
....	..	..	"	.
Ground by themselves....	..	..	"	.
.....	...	1·0091	"	.
.....	...	1·0098	"	"
..	..	..	"	"
Specially roasted and packed for P. S. Doyle & Co., Montreal.	..	..	"	"
.....	Chicory	1·0132	"	Contains from 15 to 20 p.c chicory. Adulterated.
Wo-Bo. Co. Ground when delivered.	..	..	"	Genuine.
..	Chicory	1·0132	"	Contains from 15 to 20 p.c chicory. Adulterated.
Cafe de Choix.....	Roasted grain in small quantity	..	Starch.	Adulterated.
Ground in my presence....	..	..	None.	Genuine.
.....	..	..	"	"
.....	..	..	"	"
From two different parties, marked Pure Rio, warranted by Chase & Sanborn, Montreal.	..	..	"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF ST. HYACINTHE—
1908.						
Oct. 21	Ground Coffee..	818	J. Witman, Lachine.....	½ lb..	20	Laporte, Martin & Cie, Montreal.
" 21	" ..	819	M. Charette, Lachine.....	½ " ..	20	" " ..
" 22	" ..	820	D. Gagnon, Sault Recollet....	½ " ..	20	J. A. Simard & Co., Montreal
" 22	" ..	821	O. Mercier, Sault Recollet ..	½ " .	15	Hudon, Hebert & Cie, Montreal.
" 28	" ..	822	J. H. Bastien, 527 Laurier Av., Montreal.	½ " ..	20	S. H. Ewing & Co., Montreal
" 28	" ..	823	Jos. Leduc, 204 Carrieres, Montreal	½ " ..	20	" " ..
" 28	" ..	825	E. Smith, 1344 St. Andre...	½ " ..	20	Nat. Coffee and Spice Co. Montreal.
" 29	" .	826	Jos. Charette, Valleyfield....	½ " ..	20	.. ..
" 29	" ..	827	Rowland Hill Co., Valleyfield.	½ " ..	20	C. H. Cochrane, Ottawa, Ont.
" 29	" .	828	S. Brunette, Coteau Landing..	½ " ..	20	S. H. Ewing & Co., Montreal
" 29	" ..	829	R. Duckett, Coteau Landing..	½ " ..	15	Laporte, Martin et Cie, Montreal.
" 30	" ..	830	Jos. Riopel, 31 Houle, Montreal.	6 oz..	15	L. Chaput fils et Cie, Montreal.
" 30	" .	831	C. Creeley, 140 Centre, Montreal.	½ lb ..	20	J. Rutherford, Montreal ....
						DISTRICT OF MONTREAL—
Oct. 8	Ground Coffee..	32701	J. O. Fagan, Sorel, P.Q.	½ lb ..	20	Ground by vendor.. .....
" 8	" ..	32702	A. R. Goulet, Sorel, P.Q.....	½ " ..	20	C. Labelle, Sorel, P.Q .....
" 8	" ..	32703	L. H. Paquin & Co., Sorel, P.Q.	½ " ..	20	Laport, Martin & Co., Ltd..
" 9	" ..	32704	Biron & Blouin, Sherbrooke...	½ " ..	20	Ground by vendor..... .....
" 9	" ..	32705	W. D. Murray, Sherbrooke...	½ " ..	20	Chase & Sanborn, Montreal..
" 9	" ..	32706	Hebert & Fortier, Sherbrooke.	½ " ..	15	C. H. Cochrane & Co... ...
" 9	" ..	32707	J. E. Blais, Sherbrooke.....	½ " ..	20	Not given ....
" 10	" ..	32708	R. L. Cross, Richmond, P.Q..	½ " ..	20	... .
" 13	" ..	32709	J. B. St. Pierre, St. Hyacinthe	½ " ..	20	....
" 13	" ..	32710	A. Clapin, St. Hyacinthe.....	½ " ..	13	....
14	" ..	32711	David Hebert, Drummondville, P.Q.	½ " .	25	Not known..... .....
" 14	" ..	32712	J. Moisan, Drummondville, P.Q.	½ " ..	20	J. A. Mathewson & Son, Montreal.
" 14	" ..	32713	J. N. Turcotte, Drummondville, P.Q.	½ " ..	20	....
" 15	" ..	32714	J. E. Caouette, Thetford Mines, P.Q.	½ " ..	20	Not known.....

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GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks, and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent Extract.	Iodine Reaction for Starch.	
J. C. ROULEAU, INSPECTOR—*Concluded*.				
Pure Mocha, warranted by Chase & Sanborn, Montreal.			None	Genuine
			"	"
			"	"
			"	"
		1·0083	"	"
			"	"
	Chicory.	1·0131	"	Contains from 10 to 15 p.c. chicory. Adulterated.
Pure Java Coffee, Dalton Bros., Toronto.			"	Genuine.
			"	"
Ground in my presence.			"	"
Pure Maracaibo			"	"
Owl Blend Coffee			"	"
		1·0090	"	"
J. J. COSTIGAN, INSPECTOR.				
			None	Genuine.
	Chicory.	1·0121	"	Contains from 10 to 15 p.c. chicory. Adulterated.
			"	Genuine.
			"	"
			"	"
			"	"
			"	"
Ground by vendor.			"	"
"			"	"
Put up in packets by vendor			"	"
			"	"
		1·0090	"	"
Ground by vendor			"	"
			"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF MONTREAL—
1908.						
Oct. 15	Ground Coffee..	32715	Roberge & Roberge, Thetford Mines, P.Q.	½ lb ..	20	.....
" 15	" ..	32716	Alphonse Blais, Thetford Mines, P.Q.	½ " ..	15	Not known.....
" 15	" ..	32717	C. J. Lane, Lennoxville, P.Q..	½ " ..	20	.....
" 15	" ..	32718	Geo. Bolduc, Lennoxville, P.Q.	½ " ..	20	T. A. Bourque, Sherbrooke .
" 15	" ..	32719	Joseph Masson, Danville, P.Q.	½ " ..	20	Chase & Sanborn .....
" 15	" ..	32720	Jas. McCoy, Danville, P.Q ...	½ " ..	20	L. Chaput fils & Co. .....
" 19	" ..	32721	J. E. Menard, Farnham, P.Q.	½ " ..	20	F. F. Dally Co., Ltd.....
" 19	" ..	32722	P. Larochelle, Farnham, P.Q.	½ " ..	20	Not known.....
" 19	" .	32723	F. X. Giroux, Farnham, P.Q..	½ " ..	20	J. Mathewson & Co., Montreal.
" 20	" ..	32724	N. Taillefer, Granby, P.Q. ...	½ " ..	20	Dom. Coffee and Spice Mills Co., Montreal.
" 20	" ..	32725	Isabelle & Rivet, Granby, P.Q..	½ " ..	20	Not given .. ..
" 20	" ..	32726	M. Mercure et fils, Granby, P.Q.	½ " ..	18	E. D. Marceau, Montreal....
" 20	" ..	32727	C. Vincent, Grandry, P.Q ...	½ " ..	18	Not known..... . .. ..
" 20	" ..	32728	R. W. Bradford, Granby, P.Q..	½ " ..	20	Chase & Sanborn, Montreal..
" 20	" ..	32729	H. L. M. Vaudry, Waterloo, P.Q.	½ " ..	20	Thos. Woods Co., Montreal .
" 20	" ..	32730	Gilmour & Girard, Waterloo, P.Q.	½ " ..	20	....
						DISTRICT OF OTTAWA—
Sept. 30	Ground Coffee..	22689	C. S. Northcott, Vankleek Hill.	1 lb ..	45	Ground by vendor... .. ....
Oct. 1	" ..	22690	M. Gorman, Eganville.....	½ " ..	20	Not known..... .....
" 1	" ..	22691	D. Lacey & Son, Eganville...	½ " ..	20	Ground by vendor... .....
" 1	" ..	22692	H. Dover, Eganville.....	½ " ..	20	W. Galbraith & Son, Montreal.
" 3	" ..	22693	M. T. Cleland, Kemptville....	½ " ..	20	Ground by vendor.....
" 3	" ..	22694	Mundle & Percival, Kemptville	½ " ..	20	Ground by vendors ....
" 3	" ..	22695	The Anderson Langstaffe Co., Kemptville.	½ " ..	20	" . . . . .
" 5	" ..	22696	W. R. Stroud, Hull, P.Q	½ " ..	20	Ground by vendor.....
" 5	" ..	22697	Capital Blend Tea Co., Hull, P.Q.	½ " ..	15	Ground by vendors .....
" 6	" ..	22698	A. J. McAdam, Almonte.....	½ " ..	18	Ground by vendor.....
" 6	" ..	22699	F. W. Robertson, Almonte ...	½ " ..	20	" .. ..

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GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks, and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent Extract.	Iodine Reaction for Starch.	
J. J. COSTIGAN, INSPECTOR—*Concluded*				
Ground by vendor..			None	Genuine.
		1·0092	"	"
Ground by vendor...			"	"
			"	"
			"	"
			"	"
		1·0099	"	"
			"	"
			"	"
	Chicory.	1·0135	"	Contains about 20 p.c. chicory. Adulterated.
			"	Genuine.
			"	"
			"	"
			"	"
			"	"
Mixed by vendor with 10 p. c. of chicory.			"	Sold as compound.
J. A. RICKEY, INSPECTOR.				
Sold as ground coffee.			None	Genuine.
"			"	"
"			"	"
"			"	"
"			"	"
"			"	"
"			"	"
"		1·0084	"	"
"	Chicory.	1·0120	"	Contains from 10 to 15 p.c. chicory. Adulterated.
"			"	Genuine.
"			"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
						DISTRICT OF OTTAWA—
1908.						
Oct. 6	Ground Coffee..	22700	D. J. Dick, Almonte	½ lb ..	20	" .....
" 7	" ..	22749	W. C. Edwards & Co., Rockland.	½ " ..	20	Dalley & Co., Hamilton... .
" 7	" ..	22750	Z. Giroux, Rockland.....	½ " ..	20	S. J. Major, Ltd., Ottawa...
" 7	" ..	22751	J. Charron, Rockland	½ " ..	18	Chaput fils & Co., Montreal..
" 9	" ..	22752	MacKay Bros., Renfrew	½ " ..	20	Ground by vendors .....
" 9	" ..	22753	P. J. Campbell, Renfrew.....	½ " ..	20	" ... .
" 9	" ..	22754	Dempsey & Co., Renfrew. ...	½ " ..	20	" ....
" 9	" ..	22755	J. Cunningham, Arnprior.....	½ " ..	20	Kearney Bros., Montreal....
" 9	" ..	22756	W. M. Howe, Arnprior ...	½ " ..	15	Chase & Sanborn, Montreal..
" 10	" ..	22757	A. F. Dey & Co., Finch	½ " ..	18	Ground by venders .....
" 10	" ..	22758	Hugh Fraser & Son, Winchester	½ " ..	18	" . ... ..
" 10	" ..	22759	A. Sweet & Co., Winchester ..	½ " ..	20	" .....
" 10	" ..	22760	J. E. Cook, Winchester.....	½ " ..	20	" .....
" 12	" ..	22761	Farmers Tea Co., Ottawa. ...	½ " .	15	" .....
" 12	" ..	22762	P. Lamoureux, Ottawa	½ " ..	20	" .....
" 12	" ..	22763	C. J. Neate, Ottawa....	½ " ..	18	C. H. Cochrane & Co., Ottawa
" 12	" ..	22764	A. Finkelstein, Ottawa.....	½ " ..	18	Capital Blend Tea Co., Ottawa
" 10	" ..	22765	J. Johnston, Ottawa..	½ " ..	15	Ground by Stroud & Co., Ottawa.
" 10	" ..	22766	Wm. York, Ottawa.....	½ " ..	20	Ground by vendor.....
						DISTRICT OF KINGSTON—
Oct. 28	Ground Coffee..	36001	F. A. Allan, Kingston..	½ lb ..	18	Chase & Sanborn, Montreal..
" 28	" ..	36002	J. Campbell, Kingston	½ " ..	20	Geo. Robertson & Son, Kingston.
" 28	" ..	36003	J. Babcock, Kingston	½ " .	15	W. G. Craig, Kingston.....
" 28	" ..	36004	H. M. Stover, Kingston	½ " ..	20	Maclean, Kingston.....
" 28	" ..	36005	C. S. Litton, Kingston	½ " ..	15	C. H. Cochrane, Ottawa. ...
" 29	" ..	36006	W. J. Nesbitt, Kingston....	½ " ..	15	McLarens, Hamilton .....

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GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent Extract.	Iodine Reaction for Starch.	
J. A. RICKEY, INSPECTOR—*Concluded.*				
Sold as ground coffee			None	Genuine
"	Chicory	1·0108	"	Contains about 5 p.c. chicory. Adulterated.
Sample from box labelled Pure Coffee, mfg. by Chase & Sanborn. Sold as ground coffee.			"	Genuine.
Sample from tin box marked Cafes de Choix. Sold as ground coffee.			"	"
Sold as ground coffee			"	"
"			"	"
"			"	"
"			"	"
"			"	"
"			"	"
"			"	"
"		1·0085	"	
"			"	"
"			"	"
"			"	"
"			"	"
"			"	"
"	Chicory.	1·0122	"	Contains from 10 to 15 p.c. Chicory. Adulterated.
Sold as ground coffee. After purchase was made vendor said there was an ounce of chicory in sample.	"	1·0117	"	Contains about 10 p.c. chicory. Sold as compound.
JAS. HOGAN, INSPECTOR.				
			None	Genuine.
			"	"
		1·0104	"	"
			"	"
		1·0102	"	"
			"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by Vendor
						DISTRICT OF KINGSTON—
1908.						
Oct. 29	Ground Coffee..	36007	F. Ostler, Kingston..... ..	½ lb..	20	J. H. Lowes, Hamilton .....
" 29	" ..	36008	H. A. Smith, Kingston.....	½ " ..	20	Chase & Sanborn, Montreal..
" 29	" ..	36009	C. H. Pickering, Kingston...	½ " ..	20	" " ..
" 29	" ..	36010	C. Saunders, Kingston..... ..	½ " ..	20	" " ..
" 29	" ..	36011	J. Cullen, Kingston....	½ " ..	20	W. G. Craig, Kingston.....
" 29	" ..	36012	Anderson Bros., Kingston ..	½ " ..	20	Hamilton Spice & Coffee Co., Hamilton.
" 29	" ..	36013	E. S. Suddard, Kingston	½ " ..	15	Greig, Toronto .....
" 29	" ..	36014	Kirk & Lee, Kingston.....	½ " ..	20	Jas. Rutherford, Montreal...
" 29	" ..	36015	J. Kelly, Kingston..... ...	½ " ..	20	.....
" 29	" ..	36016	J. Redden, Kingston.....	½ lb..	20	Roasted by vendor .. ....
" 29	" ..	36017	C. H. Parkin, Kingston	½ " ..	15	Roberston & Mecolle, Kingston.
" 29	" ..	36018	H. Shay, Kingston.....	½ " ..	15	Not known ... .
" 29	" ..	36019	C. H. Clark, Kingston.....	½ " ..	18	Jas. Redden, Kingston.....
" 29	" ..	36020	D. B. Gage, Kingston.... ...	½ " ..	20	Fenwick & Hendry, Kingston.
" 29	" ..	36021	I. T. Morris, Kingston.	½ " ..	20	Geo. Robertson & Son, Kingston.
" 29	" ..	36022	J. Lemmon, Kingston.... ...	½ " ..	15	Dalton Bros., Toronto. ....
" 29	" ..	36023	J. McCulla, Kingston.....	½ " ..	20	S. H. Ewing, Montreal.....
" 29	" ..	36024	P. A. Haffner, Kingston... .	½ " ..	20	J. M. Lowes, Toronto.....
" 29	" ..	36025	Stroud Bros., Kingston.....	½ " ..	20	Stroud Bros., Montreal.....
" 29	" ..	36026	George Gibson, Kingston.	½ " ..	20	Not known..... ....
Nov. 2	" ..	36027	Madden Bros., Napanee.....	½ " ..	20	F. F. Dalley, Hamilton.....
" 2	" ..	36028	H. W. Kelly, Napanee.	½ " ..	20	Todhunter & Mitchell, Toronto.
" 2	" ..	36029	J. Paisley, Napanee.....	½ " ..	20	" " ..
" 2	" ..	36030	Coxall Co., Napanee.	½ " ..	20	Mathsons, Montreal..... .
						DISTRICT OF TORONTO—
Oct. 12	Ground Coffee..	35169	Mrs. A. Beggs & Sons, Durham.	½ lb..	20	Not known .....
" 13	" ..	35170	John Goos, Walkerton.....	½ " ..	20	Pure Gold Mfg. Co., Ltd., Toronto.

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GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent Extract.	Iodine Reaction for Starch.	
JAS. HOGAN, INSPECTOR—*Concluded.*				
.....	.....	.....	None.	Genuine.
.....	.....	.....	"	"
.....	.....	.....	"	"
.....	.....	.....	"	"
.....	.....	1·0099	"	"
.....	.....	.....	"	"
.....	.....	.....	"	"
.....	.....	.....	"	"
Roasted by vendor.....	.....	.....	"	"
.....	.....	.....	"	"
.....	Roasted grain.....	.....	Starch..	Adulterated.
.....	"	.....	"	"
.....	Chicory	1·0124	None...	Contains from 10 to 15 p.c. chicory. Adulterated.
.....	.....	.....	"	Genuine.
.....	.....	.....	"	"
.....	Chicory	1·0128	"	Contains from 15 to 20 p.c. chicory. Adulterated.
.....	.....	.....	"	Genuine.
.....	.....	.....	"	"
.....	.....	.....	"	"
Coffee was part of stock that Vendor bought. Tin marked S. H. Ewing.	.....	.....	"	"
.....	.....	.....	"	"
.....	.....	1·0096	"	
.....	.....	1·0096	"	"
.....	.....	.....	"	"
H. J. DAGER, INSPECTOR.				
Sample taken from tin not labeled.	.....	.....	None...	Genuine.
Sample from tin labeled Pure Gold, hand picked coffee. Asked for best quality.	.....	.....	"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
						DISTRICT OF TORONTO—
1908.						
" 13	Ground Coffee..	35171	J. A. Wells, Southampton....	½ lb..	20	Gorman Eckert Co., Ltd., London.
" 13	" ..	35172	J. M. Wells, Port Elgin	½ " ..	20	McLaughlan & Sons & Co., Owen Sound.
" 14	" ..	35173	Mrs. S. Mooney, Paisley. ...	½ " ..	20	Todhunter & Mitchell Co. Toronto.
" 14	" ..	35174	J. O. Hymen, Mildmay	½ " ..	20	Gorman Eckert & Co., Ltd., London.
" 15	" ..	35175	Charles Doepel, Hanover.....	½ " ..	20	" " ..
" 15	" ..	35176	James Hope, Chesley	½ " ..	20	The Canada Spice & Grocery Co., Ltd., London.
" 16	" ..	35177	H. D. Ruhl, Wiarton	½ " ..	15	McPherson Glassco Co., Hamilton.
" 16	" ..	35178	McClarty Bros., Owen Sound.	½ " ..	20	Dumouriez et Fils Compagnie
" 19	" ..	35179	Radcliffe & Co., Stouffville ...	½ " ..	15	J. M. Lowes & Co., Toronto.
" 19	" ..	35180	E. H. Crosby, Marham.	½ " ..	20	Not known .....
" 20	" ..	35181	J. F. Bowman & Co., Uxbridge	½ " ..	23	Chase & Sanborn, Montreal..
" 20	" ..	35182	F. J. Perrin, Toronto	½ " ..	20	Vendor..... ....
" 21	" ..	35183	Castle Blend Tea Co., Toronto	½ " ..	20	Vendors ....
" 21	" ..	35184	J. Phillips, Toronto	½ " .	20	Todhunter & Mitchell, Toronto.
" 21	" ..	35185	Captain Vennell, Toronto.....	½ " ..	20	Eby Blain Co., Ltd., Toronto
" 22	" ..	35186	Geo. D. Gilmore, Toronto.....	½ " ..	20	Todhunter Mitchell & Co., Toronto.
" 22	" ..	35187	Imperial Blend Tea Co., North Hamilton.	½ " ..	20	Chase & Sanborn, Montreal..
" 23	" ..	35188	A. Mundy, North Hamilton..	½ " ..	20	McLarens, Ltd., Hamilton..
" 23	" ..	35189	M. Vanevery, North Hamilton	½ " ..	20	Young, Winfield & Co., Hamilton.
" 23	" ..	35190	D. Etherington, North Hamilton.	½ " ..	20	McLarens, Ltd., Hamilton..
" 23	" ..	35191	Agnus Mundy, North Hamilton	½ " ..	13	Hamilton Coffee & Spice Co., Ltd., Hamilton.
" 23	" ..	35192	Jas. Blake, North Hamilton..	½ " .	20	W. H. Gillard & Co., Hamilton.
" 23	" ..	35193	Smith & Robitaille, North Hamilton.	½ " ..	20	" " ..
" 23	" ..	35194	E. G. Fuller, Toronto	½ " ..	20	Dalton Bros., Toronto. .. ..

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GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent Extract.	Iodine Reaction for Starch.	
H. J. DAGER, INSPECTOR—*Continued.*				
Sample from stock tin.			None	Genuine.
Sample from tin labeled Superior maple leaf, high quality and fine flavour coffee.			"	"
Labeled Todhunter's excelsior coffee sample from tin labeled pure.			"	"
Sample from tin labelled special high grade coffee.		1 0090	"	"
Sample from tin labeled.			"	"
Sample from tin labelled Crest Brand, Cairo Blend Coffee.			"	"
Vendor says. He buys in bulk and puts in stock tin.			"	"
Vendor asked if I wanted 18 or 40c. coffee. He said the 40c. was the best and sold me ½ lb.	Roasted grain and chicory.		Starch	Adultered.
			None	Genuine.
			"	"
Sample from one pound can labeled. Seal Brand Coffee, Chase & Sanborn.			"	"
	Chicory	1 0116	"	Contains about 10% p.c. chicory. Adulterated.
Sold as the best ground coffee.			"	Genuine.
Sample from orignal tin labelled Pure Mocha and Java Coffee.			"	"
			"	"
Sample from 1 lb. tin can labeled Mocha and Java Coffee.	Chicory	1 0128	"	Contains from 10 to 15 p.c. chicory. Adulterated.
			"	Genuine.
Sample from tin labelled McLaren's Invincible Coffee Java and Mocha Blend.			"	"
Sample Java Coffee.			"	"
Sample from tin labelled McLaren's Invincible Coffee Java and Mocha blend.			"	"
			"	"
Sample from tin labelled Gillard's Diamond Spices.			"	"
			"	"
Sample from tin labelled Dalton's Mocha and Java Coffee.			"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
						DISTRICT OF TORONTO—
1908.						
Oct. 27	Ground Coffee..	35195	H. Gordon, Toronto.... ...	½ lb..	20	Todhhunter, Mitchell & Co., Toronto.
" 27	" ..	35196	Miss E. Craig, Toronto.	½ " ..	20	R. B. Hayhoe & Co., Toronto
" 27	" ..	35197	W. J. Swain, Toronto.....	½ " ..	20	Pure Gold Mfg. Co., Ltd., Toronto.
" 27	" ..	35198	A. Balie, Toronto	½ " ..	13	F. J. Perrin, Toronto. .....
						DISTRICT OF LONDON—
Oct. 5	Ground Coffee...	30979	J. J. McEwan, Goderich.....	½ lb ..	20	Gorman Eckert, London ....
" 5	" ..	30988	John Shaw, Goderich.....	¾ " ..	30	" " ....
" 6	" ..	30990	Peoplestone & Gardner, Blyth.	½ " ..	20	Masurett & Co., London ....
" 7	" ..	30999	Edward Reuker, Kincardine..	½ " ..	20	W. H. Gillard & Co., Hamilton
" 7	" ..	30502	P. McGaw, Kincardine	½ " ..	20	Not known.....
" 7	" .	30509	J. H. McDonald, Listowell...	½ " ..	15	McPherson Glasco & Co., Hamilton.
" 12	" ..	30515	George McLennan, Clinton...	½ " ..	20	George McLaren, Hamilton..
" 15	" ..	30521	J. D. Smith & Co., St. Marys.	½ " ..	15	Not known..... .....
" 15	" ..	30524	J. M. Adam, St. Marys	½ " ..	20	Todhunter & Mitchell, Toronto.
" 15	" ..	30531	A. Beattie & Co., Stratford...	1 " ..	40	Chase & Sanborn.....
" 16	" ..	30537	R. McLaurin & Co., Mitchell..	1 " ..	15	Gorman Eckert & Co., London
" 21	" ..	30545	Parlmer Co., Hensal.....	½ " ..	20	Not known.....
" 21	" ..	30548	Frank J. Knight, Exter.....	½ " ..	20	Gorman Eckert. ....
" 22	" ..	30550	G. Scott, Hensal	½ " ..	20	Canada Spice & Grocery, London.
Nov. 12	" ..	34682	N. Yeats, Galt	½ " ..	20	Gorman Eckert & Co., London
" 12	" ..	34683	Deans & Walker, Galt.....	½ " ..	20	Todhunter & Mitchell, Toronto.
" 12	" ..	34684	R. W. Wright, Galt	½ " ..	20	Not known..... .....
" 12	" ..	34685	John Ritchie, Galt.....	½ " ..	15	E. Blain, Toronto..... .
" 12	" ..	34686	W. D. McKenzie, Galt..	½ " ..	13	McLarens, Hamilton.....
" 12	" .	34687	Hollands & Macwley, Galt....	½ " ..	15	Gorman Eckert & Co., London
" 13	" ..	34688	Geo. Williams, Guelph.....	½ " ..	20	Chase & Sanborn, Montreal .
" 13	" ..	34689	Benson Bros., Guelph.....	½ " ..	15	Todhunter & Mitchell, Toronto.

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GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent Extract.	Iodine Reaction for Starch.	
H. J. DAGER, INSPECTOR—*Concluded.*				
Sample from tin labelled Pure Mocha and Java Coffee.			None	Genuine
Sample from tin labelled The Club Coffee Co., Mountain Brand.	Chicory	1·0128	"	Contains from 10 to 15 p.c chicory. Adulterated.
Sample from stock tin. The original package was labelled Pure Gold Coffee. Contents cannot be guaranteed if seal is broken.			"	Genuine.
Sample from tin unlabelled		1·0103	"	"
T. KIDD, INSPECTOR, AND JOHN TALBOT, ACTING INSPECTOR.				
Ground by Vendor			None	Genuine.
			"	"
Ground by Vendor.			"	"
			"	"
Ground by Vendor			"	"
			"	"
			"	"
			"	"
		1·0091	"	"
		1·0098	"	"
			"	"
			"	"
Ground by Vendor.			"	"
			"	"
Taken from caddy in Vendors store.			"	"
" "			"	"
" "			"	"
" "			"	"
" "			"	"
" "			"	"
" "			"	"
" "		1·0090	"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Nature and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
						DISTRICT OF LONDON—
1908.						
Nov. 13	Ground Coffee..	34690	Jackson & Son, Guelph	½ lb.	20	Todhunter & Mitchell, Toronto.
Oct. 13	" ..	34691	J. T. Chittick, Guelph	½ " .	20	Not known.
" 13	" ..	34692	J. M. Dooly, Guelph	½ " ..	20	"
" 13	" ..	34693	Mrs. J. Walker, Guelph	½ " ..	20	"
" 13	" ..	34694	Johnston & Co., Guelph	½ " ..	20	R. D. Hayhoe & Co., Toronto
" 14	" ..	34699	T. Millman, Woodstock	½ " ..	20	Todhunter & Mitchell, Toronto.
" 14	" ..	34702	E. J. Coles & Co., Woodstock.	½ " ..	20	" " ..
						DISTRICT OF WINDSOR—
Oct. 7	Ground Coffee..	34610	Jos. O'Brien, London	½ lb ..	20	Pure Gold Co., Toronto.
" 8	" ..	34612	W. Loughrey, London..	½ " ..	20	Not known.
" 8	" ..	34615	T. McKay, London	½ " ..	20	Canadian Spice Co., London.
" 8	" ..	34619	Cohoon & Patterson, London..	½ " ..	20	Thos. Wood & Co., Montreal
" 8	" ..	34620	J. H. Johnston, London	½ " ..	20	Chase & Sanborn.
" 8	" ..	34623	N. McLeod, London.	½ " ..	20	Todhunter Mitchell & Co., Toronto.
" 8	" ..	34626	W. S. Murdy, London	½ " ..	20	A. M. Smith & Co., London.
" 8	" ..	34629	F. W. Parker, London..	½ " ..	20	McLaren's, Hamilton..
" 8	" ..	34630	F. W. Paul & Son	½ " ..	20	Gorman Eckert & Co., London
" 9	" ..	34632	Gussburg Bros., London	½ " ..	17	Scandrett Bros., London.
" 14	" ..	34634	Northway Co., Ridgetown	1 " ..	25	Todhunter Co., Toronto.
" 14	" ..	34636	Clark & Sons, Ridgetown.	1 " ..	40	Imperial Spice Co., Hamilton
" 15	" ..	34644	L. H. Evans, Leamington	½ " .	40	McPherson Glassco & Co., Hamilton.
" 15	" ..	34645	B. C. Watson, Leamington	½ " ..	25	Thos. Wood & Co., Montreal
" 15	" ..	34646	Geo. M. Sawyer, Leamington.	1 " ..	40	Baker Importing Co., New York.
" 15	" ..	34648	E. Quick, Kingsville.	½ lb ..	13	Did not know
15	" ..	34649	T. J. Salmons, Kingsville	¾ " ..	30	Chase & Sanborn, Montreal.
" 16	" ..	34653	Fielding & Campeau, Windsor	½ " ..	15	Not known.
Nov. 10	" ..	34660	A. A. Drinkwater, St. Thomas	½ " ..	15	McPherson, Glassco & Co. Hamilton
10	" ..	34661	Jas. Munn, St. Thomas	½ " ..	20	Chase & Sanborn, Montreal

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GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent. Extract.	Iodine Reaction for Starch.	
T. KIDD, INSPECTOR, AND JOHN TALBOT, ACTING INSPECTOR—*Concluded.*				
Taken from caddy in Vendors store.			None	Genuine.
" "			"	"
" "			"	"
" "			"	"
" "	Chicory	1·0125	"	Contains about 10 p.c. Chicory. Adulterated.
Taken from package in Vendors store.		1·0087	"	Genuine.
			"	"
JOHN TALBOT, INSPECTOR.				
			None	Genuine.
Taken from tin in store			"	"
" "			"	"
Taken from original can			"	"
			"	"
Taken from can in store			"	"
Taken from package in store			"	"
Taken from original package in store.			"	"
			"	"
Taken from tin in store			"	"
Taken from package in Vendors store.			"	"
Red Feather Brand. Taken from original package.		1·0089	"	"
Taken from caddy in Vendors store.			"	"
Labelled Woods Gilt Edge Coffee. Taken from original package in Vendors store.		1·0087	"	"
Taken from package in Vendors store.			"	"
Taken from Caddy in Vendor's Store, not labelled.			None	Genuine.
Seal Brand, Taken from original package in Vendor's Store.			"	"
Taken from Caddy in Vendor's Store.			"	"
" "	Roasted grain		Starch.	Adulterated.
"		1·0096	None	Genuine.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
						DISTRICT OF WINDSOR—
1908.						
Nov. 10	Ground Coffee..	34668	W. Southern & Son, St. Thomas	½ lb ..	20	Canada Spice & Grocery Co., London
" 10	" ..	34669	J. G. Hesther, Aylmer.....	½ " ..	20	Todhunter & Mitchell, Toronto.
" 11	" ..	34673	E. A. Ellis, Tilsonburg. ...	½ " ..	20	" " ..
" 11	" ..	34674	W. T. Gibson, Tilsonburg....	½ " ..	13	Not known.....
" 11	" ..	34676	J. A. Trestain, Tilsonburg....	½ " ..	20	Thos. Wood & Co., Montreal.
" 11	" ..	34679	W. B. Hogarth, Tilsonburg...	½ " ..	20	Todhunter & Mitchell, Toronto.
" 18	" ..	34704	J. A. Kelly, Lambeth	½ " ..	20	Canada Spice & Grocery Co., London.
" 18	" ..	34705	G. T. Carley, Lambeth.	½ " ..	20	A. M. Smith & Co., London.
" 18	" ..	34706	Earle & Son, Lambeth.....	½ " ..	20	E. Adams & Co., London...
" 18	" ..	34707	A. R. Calcott, London South..	½ " ..	20	A. M. Smith & Co., London.
						DISTRICT OF MANITOBA—
Nov. 5	Ground Coffee..	35709	J. A. Clare, Neepawa.....	½ lb ..	25	Codville Co., Ltd., Winnipeg.
" 6	" ..	35710	Galloway Bros., Gladstone ...	½ " ..	20	The Blue Ribbon Co., Winnipeg.
" 10	" ..	35711	The Beehive Store, H. C. Stake Mgr. Boissevain.	½ " ..	25	Vendor ....
" 10	" ..	35712	The J. D. Bayne Co., Boissivian.	½ " ..	25	The Codville Co., Ltd., Winnipeg.
" 11	" ..	35713	R. Cross & Co., Killarney	½ " ..	20	Wood & Co., Boston and Montreal.
" 11	" ..	35714	C. Richards, Killarney.....	½ " ..	20	Thos. Wood & Co., Boston and Montreal.
" 11	" ..	35715	S. R. Colquhoun, Deloraine...	½ " ..	20	" " ..
" 11	" ..	35716	Montgomery Bros., Deloraine.	½ " ..	20	" " ..
" 12	" ..	35717	J. H. Heiman, Morden	½ " ..	15	Foley Lock Larson, Winnipeg.
" 12	" ..	35718	M. A. Freeborn, Morden.....	½ " ..	20	Gold Standark M'f'g. Co., Winnipeg.
" 16	" ..	35719	W. C. McShane, Souris	½ " ..	20	Chase & Sanborn, Montreal..
" 16	" ..	35720	Stewart & Co., Souris.....	½ " ..	20	The Gold Standard M'f'g. Co., Winnipeg.
" 18	" ..	35721	The Central Grocery, R. Martin, Mgr., Brandon.	½ " ..	20	Vendors.... .. . .
" 18	" ..	35722	The Symington Co., Brandon.	½ " ..	20	" ....
" 18	" ..	35723	D. Rice, Brandon.....	½ " ..	20	Vendor ... ...
" 19	" .	35724	H. W. Reeves, Treherne.....	½ " ..	20	The Dyson M'f'g. Co., Winnipeg.

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GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent. Extract.	Iodine Reaction for Starch.	
JOHN TALBOT, INSPECTOR—*Concluded.*				
Taken from package in Vendor's Store.			None	Genuine.
After pkes. were sealed the Vendor stated that there might be a small amount of Chicory in sample, was not sure.			"	"
Taken from Caddy in Vendor's Store.		1·0088	"	"
" "			"	"
Caddy labelled, Thos. Wood. Boston Coffee Purity guaranteed. Vendor guaranteed it pure.			"	"
Taken from Caddy in Vendor's Store.		1·0086	"	"
Taken from original package in Vendor's Store.		1·0098	"	"
Taken from Caddy in Vendor's Store.			"	"
" "		1·0084	"	"
Taken from package in Vendor's Store.			"	"
A. C. LARIVIERE, INSPECTOR.				
Ground by Vendor			None	Genuine.
After purchase the Clerk said it was a mixture.		1·0101	"	Sold as compound.
Ground by Vendors.			"	Genuine.
" "			"	"
Wood Boston Coffee ground by Vendors.			"	"
Ground by Vendor		1·0099	"	"
" "		1·0092	"	"
" "			"	"
The Vendor labelled sample, "2 4 Roasted Rio."			"	"
Ground by Vendor			"	"
			"	"
			"	
			"	"
			"	"
			"	"
Marked Red Cross			"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
						DISTRICT OF MANITOBA—
1908.						
Nov. 19	Ground Coffee..	35725	W. R. Ross, Holland.....	½ lb...	20	Chase & Sanborn, Montreal..
" 20	" ..	35726	T. T. Pearson, Carman.	½ " ..	20	" " ..
" 20	" ..	35727	The A. E. Hill Co., Carman..	½ " ..	25	Vendors . ...
" ..	" ..	35728	G. D. Meikle, Carman.....	½ " ..	20	The Gold Standard M'f'g. Co., Winnipeg.
Dec. 8	" ..	35729	E. S. Harvey, Winnipeg.....	½ " ..	20	Vendor .. . .
" 8	" ..	35730	A. MacDonald & Co., Winnipeg.	½ " ..	20	The Blue Ribbon Co., Ltd., Winnipeg.
" 8	" ..	35731	E. Feir, Winnipeg..... ...	½ " ..	20	The Gold Standard M'f'g. Co., Winnipeg.
" 8	" ..	35732	H. R. Bandry, Winnipeg....	½ " ..	20	Vendor ....
" 8	" ..	35733	Fergies Grocery, Winnipeg...	½ " ..	20	" ....
" 9	" ..	35734	R. Beath & Son, Elmwood P.O. Winnipeg.	½ " ..	20	Vendors.....
" 10	" ..	35735	A. Thompson, Oak Lake.	½ " ..	20	Chase & Sanborn, Montreal..
" 10	" ..	35736	Cameron's General Store, Oak Lake.	½ " ..	20	The Blue Ribbon Co., Ltd., Winnipeg.
" 11	" ..	35737	G. Boulton & Co., Winnipeg..	½ " ..	20	Not given ....
" 11	" ..	35738	D. Christie, Winnipeg.....	½ " ..	20	" .....
						DISTRICT OF CALGARY—
Nov. 12	Ground Coffee..	35401	Kemick & Gold, Calgary.....	½ lb ..	15	Georgeson & Co., Ltd., Calgary.
" 12	" ..	35402	C. A. Wallace, Calgary, ...	½ " ..	25	Chase & Sanborn, Montreal..
" 12	" ..	35403	A. Brand, Calgary....	½ " ..	15	G. F. & J. Galt, Ltd., Calgary
" 12	" ..	35404	Gold West Grocery, Calgary..	½ " ..	15	L. T. Mewburn & Co., Ltd., Calgary.
" 12	" ..	35405	P. W. Garnot, Calgary.....	½ " ..	20	W. A. Jameson Coffee Co., Victoria, B.C.
" 12	" ..	35406	Hallett & Longden, Calgary ..	½ " ..	15	Unknown ....
" 12	" ..	35407	Kwong Man Yuen & Co., Calgary.	½ " ..	15	Georgeson & Co., Ltd., Calgary.
" 12	" ..	35408	J. T. Macdonald, Calgary	½ " ..	20	G. F. & J. Galt, Ltd., Calgary
" 12	" ..	35409	Peoples Co-operative Society, Ltd., Calgary.	½ " ..	15	Chase & Sanborn, Montreal..
" 12	" ..	35410	S. G. Freeze, Calgary	½ " ..	15	Georgeson & Co., Ltd., Calgary.
" 13	" ..	35411	West End Grocery, Calgary .	½ " ..	25	L. T. Mewburn & Co., Calgary.
" 13	" ..	35412	Great West Trading Co., Calgary.	½ " ..	20	" " ..
" 13	" ..	35413	H. R. Kitto, Calgary.	½ " ..	20	G. F. & J. Galt, Ltd., Calgary
" 13	" ..	35414	Alberta Supply Co., Calgary..	½ " ..	20	Campbell, Wilson & Horne, Calgary.

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GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent Extract.	Iodine Reaction for Starch.	
A. C. LARIVIERE, INSPECTOR—*Concluded.*				
Ground by Vendor			None	Genuine.
" "			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
		1 0084	"	"
R. W. FLETCHER, INSPECTOR.				
			None	Genuine.
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
						DISTRICT OF CALGARY—
1908.						
Nov. 13	Ground Coffee..	35415	W. W. Roberts, Calgary.....	½ lb...	25	Todhunter, Mitchell & Co., Toronto.
" 13	" ..	35416	Western Grocery, Calgary....	½ " ..	20	Georgeson & Co., Ltd., Calgary.
" 13	" ..	35417	H. Cross, Calgary.....	½ " ..	15	L. T. Mewburn & Co., Ltd., Calgary.
" 13	" ..	35418	Dominion Grocery.....	½ " ..	25	" " ..
" 13	" ..	35419	L. Draper, Calgary	½ " ..	25	Donnelly, Watson & Brown, Calgary.
" 13	" ..	35420	M. T. Ramage, Calgary	½ " ..	20	Campbell, Watson & Horne, Calgary.
" 14	" ..	35421	G. Armitage, Calgary	½ " ..	20	G. F. & J. Galt, Ltd., Calgary
" 14	" ..	35422	R. J. Frizzle, Calgary.....	½ " ..	20	Pure Gold Mfg. Co., Ltd., Toronto.
" 14	" ..	35423	J. E. Kavanagh, Calgary. ...	½ " ..	15	Georgeson & Co., Ltd., Calgary.
" 14	" ..	35424	R. V. Shaw & Co., Calgary...	½ " ..	25	Pure Gold Mfg. Co., Ltd., Toronto.
" 14	" ..	35425	Speer Bros., Calgary.	½ " ..	25	Campbell, Wilson & Horn, Calgary.
" 14	" ..	35426	A. Newham, Calgary.....	½ " ..	20	" " ..
" 14	" ..	35427	McClellan & Hawks, Calgary.	½ " ..	25	Georgeson & Co., Ltd., Calgary.
" 14	" ..	35428	Premium Tea Co., Calgary..	½ " ..	25	L. T. Mewburn & Co., Ltd., Calgary.
" 16	" ..	35429	Copar & Emerson, Calgary....	½ " ..	20	W. H. Malkin Co., Ltd., Vancouver, B.C.
" 16	" ..	35430	C. J. Winn, Calgary.....	½ " ..	25	Ridgeways, Ltd., Vancouver, B.C.
						DISTRICT OF VANCOUVER—
Oct. 9	Ground Coffee..	34371	Pantry Grocery, Vancouver...	½ lb ..	25	Wm. Braid & Co., Vancouver
" 9	"	34372	Wells & Co., Vancouver.....	½ " ..	20	Empress Mfg. Co., Vancouver
" 9	" ..	34373	J. R. Gosling, Vancouver.....	½ " ..	25	W. Braid & Co., Vancouver..
" 12	" ..	34374	E. Pooke, Vancouver.	½ " ..	20	W. H. Malkin & Co., Vancouver.
" 12	" ..	34375	Mrs. McWhinnie, Vancouver.	½ " ..	20	Kelly, Douglas & Co., Vancouver.
" 12	" ..	34376	J. H. Snelgrove, Vancouver ..	½ " ..	20	W. Braid & Co., Vancouver..
" 12	" ..	34377	McCulloch Bros., Vancouver..	½ " ..	15	Not known..... .. . .
" 13	" ..	34378	Direct Supply Co., Vancouver	½ " ..	20	W. Braid & Co., Vancouver..
" 13	" ..	34379	H. C. McQuarrie, Vancouver.	½ " ..	15	Empress Mfg. Co., Vancouver
" 13	" ..	34380	J. L. Clark, Vancouver.....	½ " ..	15	Braid & Co., Vancouver ....
" 13	" ..	34381	J. McArthur, Vancouver.....	½ " ..	20	Empress Mfg. Co., Vancouver
" 13	" ..	34382	David Lam & Co., Vancouver.	½ " ..	25	Young Bros., Seattle.....

SESSIONAL PAPER No. 14

GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks, and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent Extract.	Iodine Reaction for Starch.	
W. R. FLETCHER, INSPECTOR—*Concluded.*				
.....	.....	.....	None...	Genuine.
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	.....	.....	" ...	"
J. F. POWER, INSPECTOR.				
Ground in store.....	.....	.....	None...	Genuine.
.....	.....	1·0097	" ...	"
Ground in store.....	.....	.....	" ...	"
Ground in store. Brown Berry Brand.	.....	.....	" ...	"
.....	.....	.....	" ...	"
.....	Chicory.....	1·0115	" ...	Contains about 10 p.c. chicory. Adulterated.
Ground in store.....	.....	.....	" ...	Genuine.
"	.....	.....	" ...	"
"	.....	.....	" ...	"
"	.....	.....	" ...	"
"	.....	.....	" ...	"
"	.....	.....	" ...	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
						DISTRICT OF VANCOUVER—
1908.						
Oct. 13	Ground Ceffee..	34383	Malcom McLean, Vancouver..	½ lb..	15	Not known... . ...
" 13	" .	34384	Orient Tea Co., Vancouver ...	½ " ..	15	Vendors..... ...
" 13	" ..	34385	H. J. Hampton, Vancouver...	½ " ..	15	Chase & Sanborn..... . .
" 13	" ..	34386	A. & C. Grocery.....	½ lb .	20	Wm. Braid & Co., Vancouver
" 13	" ..	34387	Heely & Jackson	½ " ..	20	" " ..
" 13	" ..	34388	Howell & Weir	½ " ..	15	Poineer Coffee & Spice Co., Victoria.
" 13	" ..	34389	R. Burder..... ...	½ " ..	15	Empress Mfg. Co..... ....
" 13	" ..	34390	Empire Grocery.....	½ " ..	20	Not known.....
" 13	" ..	34391	H W. Chapman, Vancouver..	½ " ..	20	Orient Tea Co., Vancouver..
" 13	" ..	34392	Mrs. C. H. Scott, Vancouver .	½ " ..	20	W. Braid & Co., Vancouver.
" 13	" ..	34393	A. R. Griffin, Vancouver.	½ " ..	25	" " ..
" 13	" ..	34394	W. J. Halpin, Vancouver. ..	½ " ..	20	Empress Mfg. Co., Vancouver
" 15	" ..	34395	Weeks & Co., Eburne.... . ..	½ " ..	20	Hudson Bay Co., Vancouver.
" 15	" ..	34396	J. D. Richards, Eburne.....	½ " ..	20	W. H. Malkin Co., Vancouver.
" 16	" ..	34397	J. J. Effards, Sapperton.....	½ " ..	15	" " ..
" 16	" ..	34398	Adams & Dean, New Westminister.	½ " ..	20	Braid & Co., Vancouver.....
" 16	" ..	34399	Geo. Adams, New Westminister.	½ " ..	20	" " ..
" 19	" ..	34400	Star of India T. Co., Vancouver.	½ " ..	15	W. H. Malkin & Co., Vancouver.
						DISTRICT OF VICTORIA—
Nov. 18	Ground Coffee..	34977	The Saunders Grocery Co., Ltd., Victoria.	½ lb..	20	Braid & Co., Vancouver.....
" 19	" ..	34978	Harrison & McDonald, Victoria	½ " ..	20	A. Shilling & Co., San Francisco, Cal.
" 19	" ..	34979	The West End Grocery Co., Ltd., Victoria.	½ " ..	20	Braid & Co., Vancouver.....
" 19	" ..	34980	Fred Carne, Victoria.....	½ " ..	20	Empress Mfg. Co., Vancouver
" 20	" ..	34981	Jalland Bros., Victoria.....	½ " ..	20	" " .....
" 20	" ..	34982	Acton Bros., Victoria..	½ " ..	20	Braid & Co., Vancouver.. ..
" 20	" ..	34983	The Victoria Rochdale Co., Victoria.	½ " ..	20	Empress Mfg. Co., Vancouver
" 20	" ..	34984	Wm. B. Hall, Victoria.....	½ " ..	20	Braid & Co., Vancouver.....
" 23	" .	34985	Copas & Young, Victoria....	½ " ..	20	W. H. Malkin, Vancouver ..
" 23	" ..	34986	W. Speed, Victoria..... .	½ " ..	20	Victoria Coffee & Spice Mills, Victoria, B.C.
" 23	" ..	34987	Dixi H. Ross & Co., Victoria..	½ " ..	25	J. A. Folzer & Co., San Francisco, Cal.

SESSIONAL PAPER No. 14

GROUND COFFEE

Inspector's Report.	Results of Analysis.			Remarks and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent. Extract.	Iodine Reaction for Starch.	
J. F. POWER, INSPECTOR—*Concluded.*				
Ground in store			None	Genuine.
			"	"
Ground in store			"	"
			"	
Ground in store			"	
			"	"
Ground in store			"	"
		1·0092	"	"
			"	"
Ground in store			"	
"			"	"
		1·0091	"	"
Quality guaranteed		1·0102	"	"
Ground in store			"	"
"			"	"
"			"	"
"			"	"
"			"	"
D. O'SULLIVAN, INSPECTOR.				
		1·0096	None	Genuine.
			"	"
			"	"
			"	"
			"	"
			"	"
			"	
			"	"
			"	"
			"	"
		1·0097	"	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
						DISTRICT OF VICTORIA—
1908.						
Nov. 24	Ground Coffee..	34988	J. Renouf, Victoria.....	½ lb...	20	Victoria Coffee & Spice Mills Victoria, B.C.
" 25	" ..	34989	L. Dickson, Victoria.....	½ " ..	20	Poineer Coffee & Spice Mills Victoria, B.C.
" 25	" ..	34990	F. E. Plummer, Victoria.	½ " ..	20	Empress Mfg. Co., Vancouver.
" ..	" ..	34991	C. B. Jamieson, Victoria.	½ " ..	25	W. A. Jameson Coffee Co., Victoria, B.C.
" ..	" ..	34992	Hallam & Wyndham, Victoria	½ " ..	20	J. W. Berry, Vancouver, B.C.
" ..	" ..	34993	Duncan & Hamilton, Victoria.	½ " ..	20	W. W. Duncan, Victoria, B.C.
" ..	" ..	34994	C. R. Bunting, Victoria	½ " ..	20	Poineer Coffee & Spice Mills, Victoria, B.C.
" ..	" ..	34995	W. A. Jameson Coffee Co ...	½ " ..	20	Mitchell Bros., New York...
" 26	" ..	34996	Bailey & Blomquist, Victoria .	½ " ..	20	Poineer Coffee & Spice Mills, Victoria, B.C.
" ..	" ..	34997	Belquire & Heagrty, Victoria.	½ " ..	25	Alfred Haggard, Victoria, B.C
" ..	" ..	34998	John Ward, Victoria.....	½ " ..	20	Poineer Coffee & Spice Mills, Victoria.
" ..	" ..	34999	Peter S. Smith, Victoria.....	½ " ..	25	" " ..
" 27	" ..	35000	E. B. Jones, Victoria	½ " ..	25	Empress Mfg. Co., Vancouver
" ..	" ..	39201	J. F. MacDonald, Victoria...	½ " ..	25	W. A. Jameson Coffee Co., Victoria.
" ..	" ..	39202	S. C. Thomson, Victorio.....	½ " ..	20	Simon Leiser & Co., Victoria
" ..	" ..	39203	Geo. Norman, Victoria.	½ " ..	20	Hallam & Wyndham, Victoria
" ..	" ..	39204	Baker & John, Victoria..	½ " ..	20	G. B. Jameson, Victoria.....
" ..	" ..	39205	John Bros., Victoria..:..	½ " ..	20	Poineer Coffee & Spice Mills, Victoria.
" ..	" ..	39206	Deaville Sons & Co., Victoria.	½ " ..	20	" " ..

SESSIONAL PAPER No. 14

GROUND COFFEE.

Inspector's Report.	Results of Analysis.			Remarks, and Opinion of the Chief Analyst.
	Microscopical Examination.	Sp. gr. of 10 per cent Extract.	Iodine Reaction for Starch.	
D. O'SULLIVAN, INSPECTOR—*Concluded.*				
			None	Genuine.
		1·0092	"	"
			"	"
			"	"
			"	"
			"	"
			"	"
			"	"
		1·0103	"	"
			"	"
Vendor stated that sample contained ½ oz. of chicory to the lb.		1·0082	"	Sold as compound.
Vendor said sample contained a small amount of chicory.		1·0100	"	"
			"	Geninue.
			"	"
			"	"
			"	"
Vendor said sample contained a small amount of chicory.	Chicory	1·0116	"	Contains about 10 p.c. chicory. Sold as compound.
			"	Geninue.
			"	"

APPENDIX W.

BULLETIN No. 173—GROUND CLOVES.

Ottawa, February 6, 1908.

Wm. Himsworth, Esq.,
Acting Deputy Minister of Inland Revenue.

Sir,— I beg to hand you a report upon the examination of 145 samples of Ground Cloves, collected throughout Canada during July and August of last year. The following synopsis shows the general results of the examination.

Inspection District.	Probably Genuine.	Found Doubtful.	Lost.	Total.
Nova Scotia	4	6	0	10
P. E. Island	6	4	0	10
New Brunswick	5	5	0	10
Quebec	6	4	0	10
St. Hyacinthe	3	7	0	10
Montreal	4	6	0	10
Ottawa	3	7	0	10
Kingston	3	5	2	10
Toronto	2	8	0	10
London	6	4	0	10
Windsor	4	1	0	5
Manitoba	7	3	0	10
Calgary	7	2	1	10
Vancouver	6	4	0	10
Victoria	8	2	0	10
	74	68	3	145

	Samples.
Total collected	145
" analysed	142
" genuine	74
Percentage found genuine	52 %

It will be noted that while I am able to declare 52 per cent of the collection as probably genuine, I do not feel warranted in declaring adulteration as regards the remainder. This is due to uncertainty as regards the minimum limits of value for genuine cloves.

A study of cloves was made in this laboratory in 1900, and the results are published in Bulletin No. 73. The methods of examination there described have been mainly followed in the work now placed in your hands. So far as determinations of ash, fixed oil, tannin and total volatile matter are concerned, the well known processes have been employed. The distinction between that portion of the volatile matter which represents aqueous moisture, and that portion which represents volatile oil has been effected (as described in Bulletin 73) by drying *in vacuo* over sulphuric acid, to the point of incipient discoloration of the acid, and taking this loss to represent the moisture of the sample.

The mean values found for volatile oil, in 28 samples of genuine cloves, by this method, are as follows :—

(Bulletin 73, p. 14).

——	Maximum.	Minimum.	Mean.
Penang Cloves	17·2	14·8	16·2
Amboyna "	19·2	18·0	18·5
Zanzibar "	18·3	16·4	16·6
Mixture of these three kinds in equal proportion	18·2	16·4	16·9
Values found by C. Richardson (Bull. 13, Bureau of Chemistry, Washington, 1887)	18·89	10.23	15·63

Cloves are defined by the Food Standards Committee of the United States (Circ. No. 19 : Dept. of Agriculture, Washington, June 1906) as follows :—

'Cloves are the dried flower buds of Caryophyllus aromaticus, L. ; which contain not more than five (5) per cent of clove stems ; not less than ten (10 per cent of volatile ether extract ; not less than twelve 12 per cent of quercitannic acid ; not more than eight (8) per cent of total ash ; not more than five-tenths (0·5) per cent of ash insoluble in hydrochloric acid, and not more than ten (10) per cent of crude fiber.'

The 'volatile ether extract' mentioned in this definition is not strictly identical with volatile oil, for the reason that it is determined on the cloves after drying by a method which involves a considerable, and an unknown loss of volatile oil. The limit of 10 per cent for volatile ether extract, named in the definition, is certainly too low to apply to volatile oil. I have elsewhere (Bull. 73) suggested a minimum limit of 14 per cent for 'volatile oil' in cloves ; and I am convinced that an inspection of this report will justify my recommendation. It is true that 17 samples classified as 'probably genuine' yield less than 14 per cent of volatile oil. The samples in question are as follows :—

No.	Volatile Oil.
31324	12·35
26489	13 65
26487	12·55
26472	11·55
29757	12·52
32635	12·95
32634	12·40
32626	13·10
183	13·00
35284	12·87
22668	12·80
35165	13·17

No.	Volatile Oil.
33160	12·02
33158	12·10
34320	13·17
35328	11·17
34957	11·37

The remaining 57 samples, similarly classified, yield percentages of volatile oil much higher than 14 and it is open to question whether samples showing less than this amount do not consist in whole or in part, of 'exhausted cloves,' that is, cloves from which the volatile oil has been removed in whole or in part.

Starch is present in 27 samples. This is not a normal component of cloves. In a few cases the amount is so small that it may be present accidentally, but generally this assumption is not tenable. Pimento starch is usually the variety found; but sometimes wheat and maize have been identified. It must be remembered that this spice, while very frequently adulterated by addition of foreign matters, is capable of another kind of adulteration, namely, the removal of the whole or part of the volatile oil to which the spice owes its value.

The definition of Standard Ground Cloves must be written in such a way as to exclude both forms of adulteration. Such a definition is being considered.

I beg to recommend the publication of this report as Bulletin 173.

I have the honour to be, sir,

Your obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
						DISTRICT OF NOVA SCOTIA—	
1908.							
Aug. 4	Ground Cloves	33501	DeWolf & Lamont, Kentville, N.S.	6 oz.	15	F. F. Dalley Co., Hamilton.	Sample taken from Bulk.
" 5	" ..	33502	Shand Bros., Windsor.	3 pkgs	15	John P. Mott & Co., Halifax, N.S.	Warranted Superior Quality.
" 6	" ..	33503	Doyle & Co., Halifax.	3 " ..	15	W. H. Schwartz & Sons, Halifax, N.S.	Sold as Pure Peerless Brand.
" 6	" ..	33504	Nat. Drug Co., Halifax.	3 " .	15	Nat. Drug Co. of Canada.	Labeled Sovereign Brand.
" 6	" ..	33505	John P. Mott & Co., Hallfax.	3 " .	Nie.	Jno. P. Mott & Co., Halifax.	Warranted Superior Quality.
" 6	" ..	33506	" " ..	6 oz..	"	" " ..	.....
" 7	" ..	33507	W. H. Schwartz & Sons, Halifax.	3 pkgs	13	W. H Schwartz & Sons, Halifax.	Labeled Peerless brand Pure.
" 7	" ..	33508	" " ..	6 oz..	11	" " .	.....
" 7	" ..	33509	Creig & Hodgson, Halifax.	6 " ..	10	Can Drug Co., St John, N.B.	.. ..
" 7	" ..	33510	W. C. Anderson, Halifax.	6 " ..	15	W. H. Schwartz & Sons, Halifax.	.. ..
						DISTRICT OF PRINCE EDWARD ISLAND—	
July 15	Ground Cloves	31316	W. D. Currie, Souris.	6 oz..	18	Dearborn & Co., St John, N.B.	....
" 15	" ..	31317	Stern's Bros., Souris.	6 " ..	12	Nat. Drug Co., Halifax, N.S.	....
" 20	" ..	21318	Geo. Raekham, Charlottetown.	6 " ..	15	Carvell Bros., Charlottetown.	.....
" 22	" ..	31319	J. D. Hume, Murray River.	6 " ..	18	Pure Gold..... ...	.....
" 22	" ..	31320	A. M. Ross, Murray River.	6 " ..	24	Unknown	.....
" 31	" ..	31321	M. & A. McLeod, Charlottetown.	6 " ..	15	J. A. Farquharson, . .	.....
Aug. 3	" ..	31322	Bowness & Myers, Bedeque.	6 " ..	15	Dearborn & Co., St. John.	....
" 3	" ..	31323	Auld & Co., Freetown.	6 " ..	15	Chaput fils & Cb., Montreal.	.....
a 4	" ..	31324	W. J. Lidstone, Summerside,	6 " ..	12	Robert Greig & Co., Toronto.	.....
" 5	" ..	31325	Stewart & Son, Charlottetown.	6 " ..	15	W. H. Schwartz & Sons, Halifax, N.S	....
						DISTRICT OF NEW BRUNSWICK—	
July 16	Ground Cloves	29748	G. E. Barbours Ltd., St. John, N.B.	3 c't's.	23	Vendors..... . .	"Acorn" Brand Strictly Pure Cloves guaranteed.
" 16	" ..	29749	" " ..	6 oz..	13	"	"Acorn" Brand..
" 16	" ..	29750	Dearborn & Co., St. John, N.B.	6 " ..	18	"	....
Aug. 5	" ..	29751	Geo. Robertson, Moncton, N.B.	6 " ..	15	Jno. P. Mott & Co., Halifax, N.S.	....

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GROUND CLOVES.

Results of Analysis.										Remarks and Opinion of the Chief Analyst.
Total Ash.	Acid Insoluble Ash.	Volatile Matter. Water.	Volatile Matter. Oil.	Volatile Matter. Total.	Fixed Oil, Petroleic Ether Extraction.	Total Oil, Fixed and Volatile	Tannin.	Microscopical Examination.	
R. J. WAUGH, INSPECTOR.									
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
6·75	0·50	3·80	12·80	16·60	2·27	15·07	....	Starch Clove Stems and Stone cells.	Foreign matter.
6·80	0·10	4·05	9·27	13·32	1·92	11·19	16·56	Clove Stems and Stone cells.	Vol. oil is low. Foreign matter.
5·05	0·20	3·62	17·95	21·57	2·55	20·50	.....	Clove tissues.....	Genuine.
5·07	0·10	3·85	15·80	19·65	1·97	17·77	.	Clove Stems and Stone cells.	Foreign matter.
6·02	0·12	4·50	11·00	15·50	2·10	13·10	.....	" " .	"
6·35	0·20	3·42	13·72	17·14	2·50	16·22	.....	" " .	"
5·35	0·30	2·60	18·40	21·00	2·57	20·97	.....	Clove tissues.	Genuine.
4·95	0·15	2·65	19·05	21·70	2·60	21·65	.....	Clove tissues.....	"
6·50	0·25	3·05	14·57	17·62	2·45	17·02	..	Clove Stems and Stone cells.	Foreign matter.
5·65	0·25	2·70	16·80	19·50	2·00	18·80	. . .	Clove tissues..... ...	Genuine.
T. MOORE, INSPECTOR.									
5·90	0·15	3·12	17·85	20·97	2·17	20·02	. . .	Clove tissues..... ..	Genuine.
6·45	0·25	3·05	16·35	19·40	2·20	18·55	.....	Clove tissues.	"
5·55	0·20	3·10	18·20	21·30	2·15	20·35	.....	Clove tissues..... .	"
4·75	0·10	3·32	9·92	13·24	1·55	11·17	7·92	Wheat Starch, Clove Stems.	Tannin low; Foreign matter present.
6·92	0·50	4·02	10·85	14·87	1·47	12·32	...	Clove Stems and Stone Cells.	Foreign matter.
8·45	0·60	3·67	10·62	14·29	1·32	11·94	.....	" " ..	Ash: Acid insoluble Ash, are high. Foreign matter present.
7·60	0·50	4·32	11·32	15·64	3·72	15·04	.....	" " ..	Foreign matter present.
5·80	0·20	2·30	18·40	20·70	1·15	19·55	....	Clove tissues..... ...	Genuine.
7·50	0·35	3·82	12·35	16·17	1·10	13·45	.....	Clove tissues.	"
5·70	0·30	3·67	17·57	21·24	1·40	18·97	. . .	Clove tissues..	"
J. C. FERGUSON, INSPECTOR.									
6·05	0·25	2·65	18·35	21·00	3·15	21·50	.....	Clove tissues..... ..	Genuine.
6·10	0·10	2·90	16·50	19·70	2·87	19·67	. . .	"	"
4·12	0·20	6·45	24·45	30·90	2·32	30·77	13·20	"	"
8·00	0·45	2·75	9·65	12·10	1·40	11·05	13·68	Clove Stems & Stone Cells	Vol. Oil is low. Foreign matter.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
						DISTRICT OF NEW BRUNSWICK—	
1908.							
Aug. 6	Ground Gloves	29752	Miller Bros., Newcastle, N.B.	6 c't's.	10	Maritime Spice & Coffee Mills, St. John, N.B.	"Acorn" Brand..
" 7	" ..	29753	V. A. Danville, Chatham, N.B.	3 " ..	30	H. W. Cole, Ltd., St. John, N. B....	"Thistle" Brand. Bowman & Cole's Spices are guaranteed to be pure.
" 13	" ..	29754	Inches & Grimmer, St. Stephen, N.B.	6 " ..	15	Bowman and Cole, St. John, N. B....	.....
" 15	" ..	29755	H. C. Jewett, Fredericton, N.B.	6 " ..	15	" " ..	.....
" 18	" ..	29756	H. T. Noble, Woodstock, N.B.	6 " ..	15	G. C. Bourbour & Co. Ltd., St. John, N.B	.....
" 18	" ..	29757	R. E. Holyoke, Wookstock, N.B,	6 " ..	15	Dearborn & Co., St. John, N.B.	.....
						DISTRICT OF QUEBEC—	
July 16	Ground Cloves	26472	Mederic Tramblay, Baie St. Paul.	6 oz..	5	Whitead & Turner, Quebec.	.....
" 16	" ..	26477	Juste Jean, Baie St. Paul.	½ lb..	20	Turcotte & Frére, Quebec.	.....
" 17	" ..	26482	Benjamin Simard, Baie St. Paul.	6 oz..	8	Nazaire Turcotte & Cie, Quebec.	.....
" 17	" ..	26486	Alfred Otis, Baie St. Paul.	3 pkgs	27	N. Turcotte & Cie, Quebec.	.....
" 17	" .	26487	Roger Baily, Baie St Paul.	6 oz..	12	" " ..	.....
" 17	" ..	26488	P. N. Gariephy, Baie St. Paul.	6 " ..	15	A. Carrier & fils, Levis.	.....
" 24	" ..	26489	Joseph Falardeau, St. Joseph, P.Q.	6 " ..	20	Quebec Spice Mills..	.....
" 24	" ..	26493	J. C. Delage, St. Joseph, P.Q.	6 " ..	20	Unknown ...	.....
" 24	" ..	26495	Moise Pouliot, St. Joseph, P.Q.	6 " ..	15	Lavoie & Dion, Quebec.	.....
" 24	" ..	26497	Alphonse Laroche, Dorchester, Quebec.	120 6 " .	15	Joseph & Sons, Quebec.	.....
						DISTRICT OF ST. HYACINTHE—	
July 29	Ground Cloves	175	Alfred Corneau, La Carriere, Bagot.	½ lb ..	20	Raymond freres, St. Hyacinthe.	Labelled pure ground cloves.
" 29	" .	176	L. J. Dubois, St. Dominique, Bagot.	6 oz..	15	L. Chaput & fils, Montreal.	.....
" 29	" .	177	Mde. A. Roy, St. Pie, Bagot.	6 " .	15	Lacaille & Gendreau & Cie, Montreal.	.....
" 29	" .	178	J. A. Messier, St. Paul, Abbotsford.	6 " ..	15	L. Chaput fils & Co., Montreal.	Warranted pure cloves.
Aug. 4	" .	179	F. X. Gagnon, Magog	½ lb ..	17	Hudon, Hebert & Cie, Montreal.	Labelled pure ground cloves.

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GROUND CLOVES.

Results of Analysis.										Remarks and Opinion of the Chief Analyst.
Total ash.	Acid Insoluble Ash.	Volatile Matter.			Fixed oil, Petrolic Ether Extract.	Total Oil, Fixed and Volatile.	Tannin.	Microscopical Examination.	
		Water.	Oil.	Total.					
J. C. FERGUSON, INSPECTOR—*Concluded.*									
p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.		
6·75	0·20	3·20	11·3	14·55	2·50	13·85	. .	Clove Stems & Stone Cells	Foreign matter.
8·65	0 30	3·25	9·35	12 60	3·30	12 65	10 01	" " ..	Ash is high; Vol. Oil is low; tannin is low.
7 10	0·40	3·29	9·00	12 27	1·50	10·50	15·76	" "	Vol. Oil is low. Foreign matter.
6·42	0·87	3·00	10 07	13·07	2·02	12·09	. .	" " ..	Acid insoluble Ash is high. Foreign matter.
5·75	0·25	3 15	19 72	22·87	2·27	21 99	17 16	Clove tissues	Genuine.
7·02	0 42	3·77	12·52	16·29	3·00	15 52	. ....	"	"
E. BELAND, INSPECTOR.									
6·50	0·30	3·95	11 55	15 50	1 75	13 30	. . .	Clove tissues	Genuine.
5·15	0·10	4 42	21·10	25·52	1·55	22·65	. .	"	"
9 00	2·87	4·80	9·23	14·03	0·77	10·00	13·20	Ginger, Starch and Stone Cells.	Ash. Acid insoluble Ash. high. Vol. Oil is low. Foreign matter present
6·70	0·95	2·60	8·50	11·10	1·55	9·55	13·68	Clove Stems, Stone Cells & Cocoanut Stone Cells	Acid insoluble Ash. high. Vol. Oil low. Foreign matter present.
7·15	0·50	4·70	12·55	17·25	1·15	13 70	.....	Clove tissues	Genuine.
6·82	0·47	5·90	15·05	20·95	1·22	16 27	....	"	"
6·70	0·45	5 02	13·05	18·67	1·05	14·70	.....	"	"
4·30	0·50	5·05	5·42	10·47	1·37	6·79	11·04	Starch and a few Clove Stone Cells.	Vol. Oil very low. Tannin low. Foreign matter.
6·95	0·40	4·07	14·40	18·47	2·45	16·85	.....	Clove tissues.....	Genuine.
6·45	0·95	4·75	9·80	14 55	2·05	11 85	13·68	Starch and Clove Stems.	Acid insoluble Ash. high. Vol. Oil is low. Foreign matter.
J. C. ROULEAU, INSPECTOR.									
6·50	0·45	4·05	9·35	13·40	1·35	10·70	11·04	Wheat or corn starch, clove stems and stone cells.	Vol. oil low. Tannin low. Foreign matter.
5·45	0·20	4·57	16 27	20·84	1·82	18·09	.....	Clove tissues.....	Genuine.
7·45	0·45	3·65	11·90	15·55	1·80	13·70	. . .	Clove stems	Too many stems.
5·20	0·10	4·35	17·22	21·57	2·45	19·67	....	Clove tissues.....	Genuine.
4·65	0 50	4·60	7·80	12·40	0·85	8·65	7·99	Wheat starch, clove stems and stone cells.	Vol. oil low. Tannin low. Foreign matter.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
						DISTRICT OF ST. HYACINTHE—	
1908.							
Aug. 4	Ground Gloves	180	E. J. Esty & Co., Eastman.	½ lb.	18	Mathewson's Sons, Montreal.	
" 5	"	181	Paradis & Leclair, Sherbrooke.	3 pkg.	24	Heron & LeBlanc, Ltd., Montreal.	
" 10	"	182	Raymond & freres, St. Hyacinthe.	6 oz.	10	Not known.	
" 10	"	183	Albert Cadieux, St. Hyacinthe.	½ lb.	20	Lacaille, Gendreau & Cie, Montreal.	Labelled pure ground cloves.
" 11	"	184	E. Contu, Sorel	½ "	20	Laporte, Martin & Cie, Ltd., Montreal.	Labelled pure cloves.
						DISTRICT OF MONTREAL—	
July 18	Ground Cloves	32626	Gravel freres, St. Catherine W., Montreal.	6 oz.	15	S. H. Ewing & Sons, Montreal.	
" 20	"	32627	E. Dion, Valleyfield, P.Q.	6 "	15	Not given	
" 20	"	32628	Leduc et freres, Valleyfield, P.Q.	6 "	15	Hudon Orsali, Montreal.	
" 22	"	32629	J. R. McOnat, Lachute, P.Q.	6 "	13	Not given	Sold as pure
" 22	"	32630	H. J. Giles & Bro., Lachute, P.Q.	6 "	10	Mathewson's Sons, Montreal.	
" 28	"	32631	G. Racine, Point Clair, P.Q.	6 "	15	Hudon Hebert & Co., Montreal.	
" 30	"	32632	J. A. Simard & Co., St. Paul St., Montreal.	½ lb.	10	Vendors	
" 30	"	32633	J. V. Boudrias, Notre Dame W., Montreal	6 oz.	10	Vendor	
" 30	"	32634	Nat. Coffee and Spice Co., St. Paul St., Montreal.	½ lb.	15	Vendors	After completion of sale vendor stated that sample was sold as commercially pure, but contained 50 p.c. Clove Stems.
" 30	"	32635	E. C. McCoy, Huntingdon, P.Q.	6 oz.	15	F. F. Dalley Co., Hamilton.	
						DISTRICT OF OTTAWA—	
July 11	Ground Cloves	22668	J. B. Kemp, Pembroke, Ont.	6 oz.	10	Pure Gold Mfg. Co., Toronto.	Sold as ground cloves.
" 14	"	22669	Hare & McInnis, Iroquois, Ont.	6 "	15	Gilmour & Co., Brockville.	Taken from a tin labelled "Cloves Bison Brand." Goods were guaranteed. Sold as ground cloves.
" 14	"	22670	W. P. Walker, Cardinal, Ont.	6 "	12	Dalton Bros., Toronto, Ont.	Taken from a tin marked "Bison Brand." Goods are guaranteed. Sold as ground cloves.

SESSIONAL PAPER No. 14

GROUND CLOVES.

Results of Analysis										Remarks and Opinion of the Chief Analyst.
Total Ash.	Acid Insoluble Ash.	Volatile Matter. Water.	Volatile Matter. Oil.	Volatile Matter. Total.	Fixed oil, Petroleic Ether Extraction.	Total Oil, Fixed and Volatile.	Tannin.	Microscopical Examination.	
J. C. ROULEAU, INSPECTOR—*Concluded.*									
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
8·75	0·50	3·90	11·42	15·32	1·22	12·64	..	Clove stems and stone cells.	Ash too high. Foreign matter.
3·30	0·40	2·77	10·85	13·62	1·90	12·75	..	Clove tissues; stems in excess.	Excess of stems.
5·15	0·20	3·40	9·85	13·25	0·45	10·30	7·20	Wheat starch, clove stems and stone cells.	Vol. oil low. Tannin low. Foreign matter.
7·20	0·20	3·55	13·00	16·55	1·70	14·70	..	Clove tissues	Genuine.
1·72	0·60	4·10	6·77	10·87	2·62	9·39	7·44	Wheat and corn starch and clove stems.	Acid insoluble ash high. Vol. oil is low; tannin low. Foreign matter.
J. J. COSTIGAN, INSPECTOR.									
7·02	0·42	3·67	13·10	16·77	1·37	14·47	.....	Clove tissues.....	Genuine.
6·92	0·50	4·25	8·65	12·90	1·52	10·17	11·28	Clove stems and stone cells.	Vol. oil is low. Tannin low. Foreign matter.
6·10	0·50	4·50	10·95	15·45	2·27	13·22	.	" " .	Foreign matter.
5·75	0·30	3·75	10·42	14·17	2·10	12·52	....	Starch, clove stems and stone cells.	"
8·00	0·47	4·07	10·17	14·24	2·35	12·52	.....	Clove stems and stone cells.	"
4·20	0·35	4·62	6·58	11·20	2·45	9·03	6·00	Starch, some clove stems and stone cells.	Vol. oil is low. Tannin low. Foreign matter.
6·72	0·25	3·77	13·80	17·57	3·07	16·87	.....	Clove tissues	Genuine.
5·95	0·15	3·92	11·07	14·99	2·32	13·39		Starch, clove stems and stone cells.	Foreign matter.
7·37	0·47	4·02	12·40	16·42	1·72	14·12	.....	Clove tissues.....	Genuine.
5·75	0·20	3·90	12·95	16·85	2·43	15·38		.....	"
J. A. RICKEY, INSPECTOR.									
6·37	0·30	2·40	12·80	15·20	2·17	11·97	.....	Clove tissues	Genuine.
6·60	0·35	3·07	8·08	11·15	0·80	8·88	7·92	Wheat starch, clove stems and stone cells.	Vol. oil low. Tannin low. Foreign matter present.
6·05	0·20	2·90	10·65	13·55	0·50	11·15	.....	" " ..	Foreign matter present.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
							DISTRICT OF OTTAWA—
1908.							
July 18	Ground Cloves	22671	John Simpson & Son, Alexandria, Ont.	6 oz..	12	Not known	Taken from a tin marked cloves. Sold as ground cloves.
" 18	" .	22672	G. Deguire, Glen Robertson, Ont.	6 " ..	12	Laporte, Martin & Co., Montreal.....	From a box marked pure cloves. Sold as ground cloves.
" 24	" .	22673	A. Cochrane, Florence St., Ottawa, Ont.	6 " ..	20	Unknown	From bulk. Sold as ground cloves.
" 24	" .	22674	Ellis Bros., Somerset St., Ottawa, Ont.	6 " ..	20	"	Sold as ground cloves.
" 24	" .	22675	R. Baird, Somerset St., Ottawa, Ont.	6 " ..	20	Not known	" ..
" 24	" .	22676	Bate & Co., Bank St., Ottawa, Ont.	6 " ..	24	"	" ..
" 25	" .	22677	G. F. Hodgins, Shawville, P.Q.	6 " ..	20	Pure Gold Mfg. Co., Toronto, Ont.	" ..
							DISTRICT OF KINGSTON—
July 22	Ground Cloves	35275	J. B. Harker, Belleville, Ont.	6 oz..	15	R. Grig, Toronto....	....
" 22	" .	35276	G. Pearson, Belleville, Ont.	6 " ..	15	" ...	....
" 22	" .	35277	J. H. P. Young, Belleville, Ont.	6 " ..	15	Pure Gold, Toronto..	....
" 22	" .	35278	W. T. Patterson, Belleville, Ont.	6 " ..	15	C. H. Cochrane & Co., Ottawa.	....
" 22	" .	35279	S. Fourt, Port Hope..	6 " ..	15	W. H. Gilard & Co., Hamilton.	.....
" 23	" .	35280	J. E. Lillico, Peterboro, Ont.	6 " ..	15	Pearking & Iver, Peterboro.	....
" 23	" .	35281	W. J. Routly, Peterboro, Ont.	6 " ..	15	C. Richor, Peterboro	....
" 23	" .	35282	W. H. Hamilton, Peterboro, Ont.	6 " ..	25	Todhunter & Mitchell, Toronto.	....
" 23	" .	35283	P. Connal & Son, Peterboro, Ont.	6 " ..	25	" ..	....
" 23	" .	35284	R. H. Hunter, Peterboro, Ont.	6 " ..	25	" ..	....
							DISTRICT OF TORONTO—
July 31	Ground Cloves	35144	Andrew Foster, St. Catherines.	6 oz..	15	Unknown.....	Vendor said he bought it for pure stock.
Aug. 5	" .	35145	J. J. McQuarrie, Hamilton.	6 " ..	15	F. F. Dalley & Co., Ltd., Hamilton.	.....
" 7	" .	35146	W. G. Monet, Port Perry.	6 " ..	25	Not known.....	Sample was purchased with a general stock of groceries at Enniskillen.
" 7	" .	35147	McDowell & Co., Oshawa.	6 " ..	25	Todhunter Mitchell Co., Toronto.	....
" 8	" .	35148	J. C. Waterhouse, Whitby.	6 " ..	15	The Robt. Greig Co., Ltd., Toronto.	... .

SESSIONAL PAPER No. 14

GROUND CLOVES.

Results of Analysis.										Remarks and Opinion of the Chief Analyst.
Total Ash.	Acid Insoluble Ash.	Volatile Matter.			Fixed oil, Petrolic Ether Extraction.	Total Oil, Fixed and Volatile.	Tannin.	Microscopical Examination.	
		Water.	Oil.	Total.					
J. A. RICKEY, INSPECTOR—*Concluded.*									
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
7·27	0·20	2·65	14·00	16·65	2·07	16·07	....	Clove tissues.....	Genuine.
7·62	0·50	2·35	11·27	13 62	2·37	13·64	.....	Clove stems	Foreign matter.
7·30	0·45	2·85	11·30	14·15	2·00	13·30	....	Few clove stems, &c...	Foreign matter in small amount.
2·62	0·20	3·20	9 15	12·35	1·25	10·40	4·80	Starch, &c...	Vol.oil low. Tannin low. Foreign matter.
8·00	0·50	2·65	10 97	13 62	1·95	12·92	..	Clove stems	Foreign matter (c l o v stems).
6·15	0·17	2 85	16·80	19 65	1 12	17·92	.....	Clove tissues..... ..	Genuine.
5·07	0·50	3·97	7·78	11·75	1 45	9·23	12·24	Wheat starch....	Vol. oil low. Foreign matter.
J. HOGAN, INSPECTOR.									
6·25	0·20	2·72	13·25	15·97	2·35	15·60	.....	Clove stems and long stone cells.	Foreign matter.
6 75	0·50	2 85	14·60	17·45	2 40	17 00	....	Clove tissues.	Genuine.
5·85	0·20	2·50	17·10	19 60	2·95	20·05	.....	"	"
7·80	0·95	3·20	9·62	12·82	1·17	10·79	13·44	Clove stems and stone cells.	Acid insoluble ash high; vol. oil low. Foreign matter.
.....	.....	.....	.....	.....	.....	.....	.....	.....	Spoiled by bad packing of our inspector.
6·27	0·40	2·97	9·08	12·05	1·75	10·83	12 60	Clove stems, stone cells, starch.	Vol. oil low. Foreign matter.
7·90	0·25	4 50	7·40	11·90	1·35	8·75	14 64	Clove stems and stone cells.	" "
.....	.....	.....	.....	.....	.....	.....	....	.....	As in 35279.
7·80	1 05	3·32	10·12	13 42	2·50	12·62	....	Clove stems and stone cells.	Acid insoluble ash is high. Foreign matter.
6·60	0 20	3·25	12·87	16·12	2·67	15·64	.....	Clove tissues.....	Genuine.
H. J. DAGER, INSPECTOR.									
6·40	0·50	4·02	11·50	15·52	2·80	14·30	....	Starch, clove stems and stone cells.	Foreign matter.
5·85	0·35	3·90	10·12	14·02	1·47	11·59	.....	Starch.	"
6·45	0·25	3·45	12·77	16·22	2·40	15·17	...	"	"
6·95	0·60	3·55	10·20	13 75	3 05	13·25	.....	Clove stems and stone cells.	Acid insoluble ash is high. Foreign matter.
8·00	0·70	3·60	11·05	14·65	2·90	13·95	.....	" " ..	" "

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
						DISTRICT OF TORONTO—	
1908.							
Aug. 11	Ground Cloves	35164	A. M. Rinher, Welland.	6 oz.	15	Unknown.	
" 11	"	35165	Ford & Brittin, Welland.	6 "	15	Todhunter Mitchell Co., Toronto.	
" 12	"	35166	John Hickman, Toronto.	6 "	15	" "	
" 12	"	35167	E. A. Kendall, Toronto	6 "	15	Dalton Bros., Toronto	Sample was taken from tin labelled Dalton Bros. Cloves, B. Vendor said sample was Dalton's Cloves.
" 12	"	35168	E. Wiltse, Toronto	6 "	15	" "	Taken from stock tin, labelled Dalton Bros. Cloves.
						DISTRICT OF LONDON—	
July 15	Ground Cloves	30939	Sturday & Co., Goderich.	6 oz.	15	Gorman & Eckart, London.	
" 15	"	30940	F. J. Buttand, Goderich.	6 "	15	Dom. Drug Co., Goderich.	
" 16	"	30944	Michael Klinghamer, Dublin, Ont.	6 "	15	Gorman & Eckart, London.	
" 20	"	30951	Mathew Williams, Seaforth.	6 "	15	F. F. Dalley & Co., Hamilton.	
" 21	"	30953	A. Beattie & Co., Stratford.	6 "	15	Gorman Eckart & Co., London.	
" 21	"	30956	A. F. Lloyd, Stratford.	6 "	15	" "	
" 22	"	30962	J. A. Stewart, Exeter	6 "	15	Unknown.	
" 29	"	30969	George Thompson, Brussels.	6 "	15	Todhunter & Mitchell Toronto.	
" 31	"	30970	Mr. Stewart, Stratford	6 "	15	Canada Spice Co., Toronto.	
" 31	"	30973	J. D Smith, St. Marys	6 "	15	Not known.	
						DISTRICT OF WINDSOR—	
Aug. 11	Ground Cloves	34589	Gorman Eckert & Co., London.	3 cartons.	20	Vendors	Taken from stock in factory.
" 11	"	34590	Canada Spice & Grocery Co., London.	3 lb.	25	"	" "
" 12	"	34592	G. T. Carley, Lambeth	9 oz.	45	Not known.	
" 12	"	34595	Earle & Son., Lambeth	9 "	25	Red Feather Co., Hamilton.	Packed and milled for Red Feather Co.
" 13	"	34598	Wm. Cross, Strathroy	9 "	45	Not known.	

GROUND CLOVES.

Results of Analysis.										
Total Ash.	Acid Insoluble Ash.	Volatile Matter. Water.	Volatile Matter. Oil.	Volatile Matter. Total.	Fixed oil, Petrolic Ether Extraction.	Total Oil, Fixed and Volatile.	Tannin.	Microscopical Examination.	Remarks and Opinion of the Chief Analyst.
H. J. DAGER, INSPECTOR—*Concluded.*									
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.			
6·00	0·32	3·62	13·57	17·19	3·25	16·82	10·08	Wheat starch and clove stems.	Tannin low. Foreign matter.
7·00	0·25	3·47	13·17	16·64	2·80	15·97	.....	Clove tissues	Genuine.
6·50	0·65	3·35	16·57	19·92	2·22	18·79		Ginger, starch	Acid insoluble ash is high. Foreign matter in traces.
5·72	0·10	3·25	18·87	22·12	1·90	20·77	16·32	Clove tissues	Genuine.
5·10	0·25	3·25	15·20	18·45	1·32	16·52	. .	Wheat starch and clove stems.	Foreign matter.
T. KIDD, INSPECTOR.									
5·92	0·35	3·57	16·95	20·52	2·15	19·10	.	Clove tissues. . . .	Genuine.
6·85	0·30	3·10	14·25	17·35	2·30	16·55	.	" . . .	"
6·25	0·45	3·35	14·47	17·82	2·00	16·47	. .	"	"
6·30	0·35	3·90	12·85	16·75	1·75	14·60	....	Clove stems and stone cells.	Foreign matter.
6·10	0·10	2·82	16·10	18·92	3·90	20·00	. .	Clove tissues	Genuine.
6·25	0·30	3·47	16·95	20·42	2·27	19·22	.	"	"
6·12	0·15	2·82	13·90	16·72	1·62	15·52		Some starch and clove stems.	Foreign matter.
7·50	0·97	3·45	13·05	16·50	3·02	16·07	....	Clove stems and stones.	Acid insoluble ash is high. Foreign matter in small amount.
5·55	0·15	2·70	20·25	22·95	1·87	22·12	.	Clove tissues.....	Genuine.
7·85	0·85	4·05	8·77	12·82	1·35	10·12	11·28	Starch, clove stems and stone cells.	Acid insoluble ash high. Vol. oil low. Tannin low. Foreign matter.
JOHN TALBOT, INSPECTOR.									
5·60	0·45	3·97	19·05	23·62	2·05	21·70	.....	Clove tissues.....	Genuine.
5·60	0·10	4·60	20·00	24·60	3·20	23·20	. . .	"	"
5·32	0·12	3·55	17·05	20·60	1·30	18·35	. . .	"	"
5·45	0·40	3·45	19·12	22·57	1·65	20·77	13·44	"	"
6·40	0·50	3·62	10·72	14·34	2·15	12·87	...	Clove tissues and a few stone cells.	Small quantity of foreign matter.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
						DISTRICT OF MANITOBA—	
1908.							
Aug. 8	Ground Cloves	33157	Otto Schultz, Gretna.	6 oz..	50	Not known.....	.....
" 8	" .	33158	E. Penner & Co., Gretna.	6 " ..	25	Thompson Bradshaw & Co., Toronto.	.....
" 10	" .	33159	J. A. Becker, Pilot Mound.	6 " ..	20	Not known..... ...	.....
" 10	" .	33160	J. G. McLean & Co., Pilot Mound.	3 pkg.	30	Todhunter Mitchell & Co., Toronto.	Strictly pure selected cloves.
" 10	" .	33161	D. S. McKay, Pilot Mound.	6 oz..	15	Not given	.....
" 11	" .	33162	P. Winram & Co., Manitou.	3 pkg.	45	The Codville Co., Winnipeg.	Gold standard pure spice.
" 11	" .	33163	J. Wooten, Manitou..	3 " .	25	The Blue Ribbon Ltd., Winnipeg.	.....
" 12	" .	33164	Campbell Bros. & Wilson, Winnipeg.	3 " .	19	G. L. Dunn & Co., Hamilton.....	Royal Shield brand of goods. Cloves.
" 12	" .	33165	The Blue Ribbon Ltd., Winnipeg.	6 oz..	no chg.	Vendor..	.....
" 13	" .	33166	The Jobin Marrin Co. Ltd., Winnipeg.	6 " ..	10	"	.....
						DISTRICT OF CALGARY—	
Aug. 14	Ground Cloves	35321	L. T. Mewburn, Calgary.	3 tins.	25	Red Feather, Hamilton.	.....
" 14	" .	35322	Tuxedo Coffee & Spice Mills, Calgary.	3 pkg.	25	Vendors.....	.....
" 17	" .	35323	R. Dunn, Medicine Hat.	3 tins.	30	F. F. Dalley Co., Hamilton.	.....
" 17	" .	35324	D. Milne Co., Ltd., Medicine Hat.	3 " ..	30	Blue Ribbon Mfg. Co., Winnipeg.	.....
" 19	" .	35325	Hudson Bay Co., Lethbridge.	3 " ..	30	Unknown	.....
" 19	" .	35326	Bently Co., Ltd., Lethbridge.	3 " ..	30	Imperial Spice Co., Hamilton.	.....
" 22	" .	35327	Wilkin & Jones, Fort Saskatchewan	3 " ..	30	Red Feather Co., Hamilton.	.....
" 22	" .	35328	Shera & Co., Fort Saskatchewan	3 " ..	30	The Dyson Co., Winnipeg.	.....
" 25	" .	35329	Hudson Bay Co., Edmonton	3 " ..	30	Unknown...	.....
" 25	" .	35330	Acme Co., Ltd., Edmonton.	3 " ..	30	Hamilton Coffee & Spice Co., Hamilton.	.....
						DISTRICT OF VANCOUVER—	
July 31	Ground Cloves	34315	C. E. Turner, Vancouver.	3 tins.	30	Kelly, Douglas & Co., Vancouver.	Guaranteed finest quality and full strength.
" 31	" .	34316	J. F. May, Vancouver	6 oz..	15	W. Braid & Co., Vancouver.	.....
" 31	" .	34317	Baitig & Petch, Vancouver.	6 " ..	15	Empress Mfg. Co., Vancouver.	.....
" 31	" .	34318	The White Thomson Co., Vancouver.	3 tins.	30	" " ..	Empress Brand. ..

GROUND CLOVES

Results of Analysis.										Remarks and Opinion of the Chief Analyst.
Total Ash.	Acid Insoluble Ash.	Volatile Matter.			Fixed oil, Petroleic Ether Extraction.	Total Oil, Fixed and Volatile.	Tannin.	Microscopical Examination.	
		Water.	Oil.	Total.					
A. C. LARIVIERE, INSPECTOR.									
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
6·10	0 10	3·05	13·90	16·95	2·87	16·77	.....	Clove tissues	Genuine.
6·40	0·40	3·42	12·10	15 52	4·17	16·27	.....	"	"
5·60	0·12	3·30	17·95	21·25	2 00	19 95	....	"	"
7·05	0 40	4·32	12·02	16·34	1 62	13·64	.....	"	"
7·42	0·35	3·87	11·40	15·27	2·50	13·90	.....	Clove stems.....	Too many stems.
5·25	0 10	1·22	20·55	24·77	2·20	22 75	.....	Clove tissues	Genuine.
6·10	0·50	3·15	20 62	23·77	1·15	21·77	.....	"	"
6·45	0·50	3·95	11·85	15 80	0·62	12 47	....	Clove stems and stone cells.	Foreign matters of small amount.
5·50	0 20	2 85	20·57	23·42	1 07	21·64	....	Clove tissues.....	Genuine.
7·10	0·50	4·15	10 65	14 80	1·90	12 55	....	Clove tissues and a few stone cells.	Foreign matter in small amount.
R. W. FLETCHER, INSPECTOR.									
5·85	0 10	3 00	17 32	20·32	0·80	18 12	. .	Clove tissues.....	Genuine.
5·00	0·20	3 65	16 50	20 15	2 22	18 72	....	"	"
6 55	0 85	4·60	12·70	17 30	1 35	14·05	. .	"	Acid insoluble ash is high.
.....	....	.....	.....	.	....	. .	...	....	Lost through bad packing
5·92	0 17	3·45	18 75	22·20	1·00	19 75	.....	Clove tissues	Genuine.
7 87	0·50	4 60	11·32	15·92	1·20	12 52	.....	Clove stems and stone cells.	Foreign matter.
5·42	0·32	3·10	22·55	25 65	4 10	26 65	....	Clove tissues..... ...	Genuine.
7·05	0·37	3·72	11 17	14 89	1 95	13 12	....	"	"
6·25	0·20	3·50	15·12	18·62	2·20	17 32	.....	"	"
5·90	0·12	4·25	16·20	20·45	1·65	17 85	...	"	"
J. F. POWER, INSPECTOR.									
5·20	0·20	2·72	22 75	25·47	1·85	24·60	14·40	Clove tissues.....	Genuine.
3·10	0·15	2·80	10·00	12·80	2·50	12·50	. . .	Wheat starch, clove stems and stone cells.	Foreign matter.
5·00	0·10	2·97	14·97	17·94	1·95	16·92	....	" " ..	"
7·35	0·45	3·37	13·90	17 27	2·32	16·22	....	Clove tissues.....	Genuine.

Date of Collection.	Nature of Sample.	No of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
							DISTRICT OF VANCOUVER—
1908.							
July 31	Ground Cloves	34319	Webster Bros., Vancouver.	6 oz..	15	Todhunter Mitchell & Co., Toronto.	.....
" 31	" .	34320	Howell & Weir, Vancouver.	6 " .	20	Pioneer Coffee & Spice Mills, Victoria, B.C.	... .
Aug. 1	" .	34321	Healby & Jackson, Vancouver.	3 tins.	30	E. R. Durke & Co., New York, U.S.A.	Guantlet Brand Guaranteed under Food and Drugs Act.
" 1	" .	34322	H. J. Hampton, Vancouver.	6 oz..	15	DaltonBros.,Toronto	....
" 4	" .	34323	Empress Mfg. Co., Vancouver.	9 " ..	15	Unknown	Purchased at the factory.
" 4	" .	34324	W. Braid & Co., Vancouver.	9 " ..	15	Vendors...	" ..
							DISTRICT OF VICTORIA—
July 21	Ground Cloves	34947	Windsor Grocery Co..	3 cartons.	45	Pioneer Coffee & Spice Mills, Victoria, B.C.	Extra quality cloves.
" 21	" .	34953	Saunders Grocery Co., Ltd.	3 " ..	25	E. R. Durke & Co., New York, U.S.A.	Durke's Guantlet Brand Cloves.
" 23	" .	34955	Victoria Coffee & Spice Mills, Victoria, B.C.	3 " ..	30	Victoria Coffee & Spice Mills, Victoria, B.C.	Victoria Brand Pure Cloves.
" 25	" .	34957	Fred Carne	3 pkts	30	Braid, Vancouver, B.C.	Braid's Cloves ....
" 23	" .	34958	"	6 oz..	25	Pioneer Coffee & Spice Mills, Victoria, B.C.	.....
" 23	" .	34961	West End Grocery Co., Ltd.	3 cartons.	45	Victoria Coffee & Spice Mills, Victoria, B.C.	Victoria Brand Pure Cloves.
" 23	" .	34962	" "	6 oz..	10	Todhunter Mitchell & Co., Toronto, Ont	....
" 23	" .	34965	J. W. Speed.....	3 cartons.	30	Blue Ribbon Mfg Co., Winnipeg, Man.	Blue Ribbon Pure Cloves.
" 23	" .	34966	W. O. Wallace.....	3 " ..	45	A. Shilling & Co., San Francisco, Cal.	Shilling's best Cloves.
" 24	" .	34969	Dixi H. Ross & Co...	3 " .	30	Todhunter Mitchell & Co., Toronto, Ont	Dixi H. Ross and Co's. Pure Cloves

GROUND CLOVES.

Results of Analysis.										Remarks and Opinion of the Chief Analyst.
Total Ash.	Acid Insoluble Ash.	Volatile Matter. Water.	Volatile Matter. Oil.	Volatile Matter. Total.	Fixed oil Petrolic Ether Extraction.	Total Oil, Fixed and Volatile.	Tannin.	Microscopical Examination.	
J. F. POWER, INSPECTOR—*Concluded.*									
p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.		
6·10	0·15	3·80	15·85	19·65	1·70	17·55	..	Cloves tissues.	Genuine.
4·55	0·10	3·25	13·17	16·42	2·07	15·24	..	"	"
6·10	0·27	2·80	21·30	24·10	1·52	22·82	.	"	"
6·57	0·50	3·70	7·45	11·15	1·50	8·95	8·06	Wheat starch, clove stems and stone cells.	Tannin low. Foreign matter.
6·27	0·90	4·17	12·32	16·49	2·00	14·32	..	Clove tissues and a few stone cells.	Acid insoluble ash is high. Small quantity of foreign matter.
6·00	0·27	4·37	15·47	19·84	2·32	17·79	.	Clove tissues.. ..	Genuine.
D. O'SULLIVAN, INSPECTOR.									
5·67	0·50	3·67	17·75	21·42	1·75	19·50	.. ..	Wheat starch and a few stems.	Foreign matter.
5·55	0·25	3·10	22·47	25·57	0·85	23·32	.. ..	Clove tissues...	Genuine.
5·92	0·30	3·52	18·97	22·49	0·60	19·57	....	"	"
5·72	0·12	3·67	11·37	15·02	1·32	12·69	.....	"	"
5·80	0·35	3·30	13·82	17·12	1·30	15·12	.....	"	"
7·02	0·17	4·00	14·70	18·70	0·95	15·65	. .	"	"
5·10	0·25	3·22	19·27	22·49	3·50	22·77	.. ..	"	"
6·00	0·40	3·05	18·15	22·20	1·00	20·15	.... .	"	"
4·80	0·20	3·25	24·52	27·77	1·05	25.57	12·96	"	"
7·25	0·90	3·65	12·75	16·40	0·85	13·60	....	"	Acid insoluble ash is high.

APPENDIX X.

BULLETIN No. 174—BAKING POWDERS

Wm. Himsworth, Esq.,
Acting Deputy Minister of Inland Revenue.

Sir,—I have the honour to report upon the examination of 158 samples of Baking Powders, purchased throughout the Dominion of Canada in October, 1908. The following table gives further details:—

Inspectoral District.	Classification of Baking Powder.			
	Cream of Tartar.	Alum Phosphate	Alum.	Total.
Nova Scotia	8	2	0	10
Prince Edward Island	6	4	0	10
New Brunswick	7	3	0	10
Quebec	0	7	4	11
St. Hyacinthe	3	6	1	10
Montreal	1	5	4	10
Ottawa	4	6	0	10
Kingston	10	0	0	10
Toronto	1	9	0	10
London	4	9	4	17
Windsor	3	6	1	10
Manitoba	0	10	0	10
Calgary	2	8	0	10
Vancouver	5	5	0	10
Victoria	6	4	0	10
	60	84	14	158

One sample (No. 22742, Ottawa), while owing its chief acidity to Cream of Tartar, contains also burnt alum, and should not, in strict accuracy, be classified with the Cream of Tartar Powders.

Baking powders have, on two previous occasions, been made the subject of examination in this laboratory. The first report was published in Bulletin No. 10, in June, 1889; the second as Bulletin No. 68, in April, 1900. At the time of the first report, several samples were found to contain carbonate of ammonia, as a gas producing constitutent; a few contained free tartaric acid as the *acid* component, and one brand contained bi-sulphate of potash.

Baking Powders, as now found in commerce, owe their gas producing power to bi-carbonate of soda, in admixture with one or other of the following:—

(1) Cream of Tartar, with, in some cases the addition of small amounts of free tartaric acid; (2) Burnt Alum, (3) A mixture of burnt alum with acid phosphate

of lime. It is interesting to compare the proportions of these three types of Baking Powder, as found on inspection in 1889, 1900 and 1908.

Date of Inspection.	Cream of Tartar.	Alum.	Alum Phosphate.	Total.
1889	73	5	59	137
1900	54	31	83	168
1908	60	14	84	158
	187	50	226	463

It is apparent that the type known as alum phosphate baking powder, has become increasingly popular since 1889.

The qualities demanded in a satisfactory baking powder, are :—

1. Efficiency as a gas producer.

2. That the gas be generated gradually, and only completed at the temperature of the oven.

3. That the powder keep well, either on the grocer's shelves or in the kitchen.

4. That the residues left in the bread should be harmless to health, and without undesirable taste or discolouring power.

5. That the powder be sold at a low price.

I have not attempted to enumerate these conditions of value in the order of their importance, for the simple reason that this will be different for different people. It must be inferred, from the table above given, that the alum phosphate powder meets the case, in the opinion of the Canadian consumer. A few words of comment and explanation may be offered.

1. *Efficiency as gas producer.*. Since the gas, (carbon dioxide) evolved from any one of these types of baking powder is dependent upon the decomposition of bi-carbonate of soda, contained therein, it would seem at first sight, that the powder containing most bi-carbonate of soda would be the best. Unless, however, the acid component be present in sufficient amount to completely decompose the bi-carbonate, a residum of carbonate, of soda remains in the bread, and gives a yellow, mottled appearance, and a soapy taste to it. For this reason, the amount of bi-carbonate of soda that can be present in a baking powder is limited to the acid-value of the complementary component. The maximum amount of bi-carbonate of soda which can be (theoretically) present in the three types of powder here considered, is as follows :—

	Bi-Carbonate of Soda.	Available gas.
1. Cream of Tartar powder	30·8 p.c.	16·18 p. c.
2. Alum Powder (See Bull. 10, p. 28)	51·5 "	27·00 "
3. Alum phosphate powder (See Bull. 26, p. 22)	39·65 "	20 77 "

(As a matter of fact, it is not possible to fix a limit value to the alum phosphate powder, since varying proportions of the alum and phosphate of lime in the mixture cause the acid values to vary between the limits for 100 per cent alum and 100 per cent acid phosphate of lime. For a commercial sample of the latter (Bull. 26, p. 22) the values 29·5 p.c. bi-carb. soda = 15·5 p.c. gas, were found).

The theoretical limits above quoted are not available in practice for the reason that, unless some third substance, of an inert character, is added, the mixture will more or less rapidly deteriorate, through the presence of traces of moisture in the powder itself or by access of moisture from the air. It is usual to employ starch (flour or maize) as the filler; but in alum phosphate powders, sulphate of lime (terra alba), as well as starch, is usually found. This terra alba is not necessarily added intentionally, but is a by product in the manufacture of acid phosphate of lime. It is further to be noted that the limits mentioned are only possible where the acid component is chemically pure, a condition not to be looked for, and very seldom occurring in commerce. If we assume commercial cream of tartar of good quality to be 94–95 per cent pure and a filler (starch) to be added in the proportion of 20 per cent by weight, the resultant baking powder would have the following composition :—

	Per cent.
Bi-carbonate of soda	23·7
Cream of Tartar	56·3
Starch	20·0
	100·0

Such a baking powder is capable of developing 12·38 per cent, by weight of gas, and may be considered as a typical, high class cream of tartar powder.

2. Gradual development of the gas is important because gas must be continuously produced while the bread is in the oven, and until the dough 'sets,' i.e. becomes hard enough to retain its size and shape when cool. Otherwise, collapse of the loaf results, and the bread is 'heavy' or 'sad.' Fulfilment of this condition depends chiefly upon the sparing solubility of the acid ingredient of the powder. Cream of tartar, alum (dehydrated), and alum phosphate of lime are found to meet necessary conditions. Doubtless the too ready solubility of tartaric acid, bi-sulphate of potash and acid phosphate of lime (per se) is the reason why these substances are now so seldom used in baking powders.

3. The keeping qualities of the powder depend upon the thorough drying of the components, separately; the proper employment of a filler, and the careful protection of the finished powder from atmospheric damp.

4. With exception of the starch used as a filler, the components of baking powders have no food value, and must be regarded as, at best, indifferent and perhaps positively harmful. When cream of tartar is the acid component, the residue is Rochelle salt, a gentle aperient and probably doing no harm to healthy people

With alum, the residue is a mixture of alumina and sulphate of soda (Glauber's salt), the latter a powerful purgative and the former an insoluble substance. In alum phosphate powders, the residue is a mixture of phosphate of alumina, or alumina; Glauber's salt, and phosphate of soda The last is a gentle purgative.

A great deal of discussion has taken place regarding the harmful effects of these various residues; and the matter cannot be taken as finally settled.

The above statements assume that the reaction between bi-carbonate of soda, and the acid ingredient of the powder, is completed during the process of baking; and that the components have been so nicely balanced, that the resultant bread is free from either component in excess. It is safe to say that this condition is very seldom, and probably never fulfilled. In such case, if any considerable excess of bi-carbonate of soda exists in the powder, the resultant bread will contain yellow spots, due to carbonate of soda (same as washing soda) and will have a soapy taste. If the acid used be in excess, the resultant bread will contain unchanged cream of tartar, or alum. The last named is known to be injurious to health, and its possible presence is the main reason for preferring powders made without alum. Manufacturers seek to prevent the possibility of residual alum by adding a distinct excess of bi-carbonate of soda, to these powders. By consulting the appended tables it will be seen that this excess, in the case of alum phosphate powders runs from three to four or more per cent. The number given in the column headed 'residual carbon dioxide' must be multiplied by $\frac{84}{44} = 1·91$ to give the excess in terms of bi-carbonate of soda.

It is not necessary to add so great an excess of bi carbonate to a cream of tartar powder, because the reaction between cream of tartar and bi-carbonate is more definite than that between burnt alum and bi-carbonate. The great insolubility of burnt alum renders the completion of the reaction, at the temperature of baking, and in presence of the limited amount of water present in dough, very uncertain.

5. The question of cheapness in a baking powder is too complex to be discussed at length in this place. Bi-carbonate of soda is quoted at $1.50 per 100 lbs. f.o.b., Montreal; cream of tartar at $18 per cwt.; burnt alum and acid phosphate of lime are low-priced articles; but I have not been able to get actual figures.

It is evident that the cost of *making* a baking powder is chiefly dependent upon the price of the acid component. The cost of *using* a baking powder is a different matter. Here the question of effect upon the health comes into consideration, and the price of the article may cut a small figure in the transaction.

In the absence of any legal definition of baking powder, it is, of course, impossible to classify the samples now reported, as genuine or adulterated, so long as they do not contain anything known to be injurious to health. This report serves the purpose of furnishing information regarding baking powder, as now found on the Canadian market; and it is to be hoped that this knowledge may enable a definition of baking powder to be formulated.

Under the heading 'Available carbon dioxide' in the accompanying tables, will be found the maximum percentage weight of leavening gas obtainable in baking. From what has been already said, we know that a good cream of tartar powder should yield about 12·5 per cent of gas. Any powder which yields more than this amount, almost certainly contains free tartaric acid, or burnt alum. Since any baking powder deteriorates more or less on keeping, we can only expect 12·5 per cent of gas in a perfectly fresh powder. Experience proves, however, that a well-packed baking powder may be kept for several months, or even for a year, without very material change. I am of opinion that a minimum limit of 10 per cent available gas would be quite reasonable; and that there is no necessity for having on the market any baking powder possessing less than 10 per cent of available gas production.

When the reaction between the bi-carbonate of soda and the acid present in the powder is completed, the further addition of acid will cause the evolution of more carbon dioxide gas, provided that an excess of bi-carbonate of soda is present in the powder. The amount of such gas evolved affords a measure of the excess of bi-carbonate in the powder. It must be understood that this additional gas, while available to the analyst in the laboratory, is not available to the cook, in ordinary baking operations. The column headed 'Residual carbon dioxide' contains the numbers so obtained. This number should be small, in a carefully prepared powder.

The starch component in a baking powder is of no importance, except so far as the presence of a high percentage of starch necessitates a lowered percentage of the active components. On account of its high acidity burnt alum permits the use of a high starch percentage, and it is no unusual thing to find from 45 to 50 per cent of starch in alum powders. Alum phosphate powders usually contain from 35 to 45 per cent of starch. As already shown, a good cream of tartar powder cannot contain much above 20 per cent of starch. This may, however, be considerably increased without lowering the efficiency of the powder, if free tartaric acid is made to take the place of an equal weight of cream of tartar.

Sulphate of lime (terra alba) is an undesirable filler. It is usually present in phosphate powders, as the acid phosphate of lime is manufactured by treatment of the neutral phosphate with sulphuric acid, leaving in the product an equivalent weight of sulphate of lime. Less objection can be taken to this modicum of sulphate of lime, than to the addition of terra alba, as such, to the baking powder. While having no positively harmful effect, terra alba has the objectionable qualities of great insolubility and total lack of food value.

It is sometimes claimed for it that being less hygroscopic than starch, it makes a better filler, enabling the powder to be kept longer without deterioration. I believe that the majority of consumers would prefer some form of starch, and with reason.

In the following table the different samples of like brands have been brought together, and average results calculated. These averages must not be taken for more than they are worth. The length of time that a sample has lain on the grocer's shelves, and the mode of its packing have much to do with the findings of analysis. Every baking powder is at its best when quite fresh.

CREAM OF TARTAR (TARTARIC ACID) POWDERS.

ACORN.

Number.	Available gas.	Total gas.	Residual gas.	Excess Bi-carbonate Soda.
31388	8·13	10·10	1·97	3·76
29818	9·22	12·43	3·21	6·13
Means	8·65	11·26	2·59	4·94

BUTTERMILK (CONTAINS ALUM).

22742	16·84	16·84	0·00	0·00

CLEVELAND'S SUPERIOR.

36049	11·06	11·92	0·86	1·64
36051	11·08	11·87	0·79	1·51
36053	10·22	10·87	0·65	1·24
36142	10·14	10·81	0·67	1·28
30501	10·15	10·77	0·62	1·19
Means	10·53	11·25	0·72	1·37

COOK'S FRIEND.

848	9·27	10·40	1·13	2·16
22745	9·61	10·94	1·33	2·54
Means	9·44	10·67	1·23	2·35

DEARBORN'S PERFECT.

31381	10·54	11·98	1·44	2·75
29815	11·87	12·85	0·98	1·87
29822	12·10	13·51	1·41	2·69
Means	11·50	12·78	1·28	2·44

ENGLISH CREAM.

22739	12·12	13·06	0·94	1·79

IMPERIAL.

39247	7·08	7·88	0·80	1·53

JOHNSONS.

31385	10·79	12·30	1·51	2·89

McLAREN'S INVINCIBLE.

Number.	Available gas.	Total gas.	Residual gas.	Excess Bi-carbonate Soda.
34368	10·28	10·83	0·55	1·05
39250	11·58	12·54	0·96	1·83
29819	8·75	9·77	1·02	1·95
29823	9·10	10 34	1·24	2 37
Means	9·93	10·87	0·94	1·80

PERFECT CREAM OF TARTAR.

34366	9·15	9·15	0·00	

PRICES CREAM.

35449	12·02	12·76	0·74	1·41
35452	12·23	12·86	0·63	1·20
34362	11 59	12 45	0·86	1·64
39242	11·80	12·84	1·04	1·99
Means	11·91	12·73	0·82	1·56

PURE GOLD.

31390	9·46	9·64	0·18	0·34
36046	10 38	10·38	0·00	0·00
36055	10·38	10·83	0·45	0·86
Means	10·07	10·28	0·21	0·40

ROYAL.

33738	11·55	12 30	0·75	1·43
31383	11·36	12·36	1·00	1·91
29816	11·68	12·20	0·52	0·99
850	12·67	12·92	0·25	0·48
22741	11·59	12·39	0·79	1·51
36047	11·82	12·80	0·98	1·87
36050	12·21	13·06	0·85	1·62
36054	11·49	12·31	0·82	1·57
30980	12 45	13 22	0·77	1·77
34365	12 44	13 44	1 00	1·91
39251	11·17	11·95	0·78	1·49
Means	11·86	12·63	0·78	1·52

ST. GEORGE'S.

33739	9·57	11·10	1·53	2·32
31386	10·55	12·10	1·55	2·96
29814	8·54	9·98	1·44	2·75
32751	10·14	10·99	0·85	1 62
36048	9·37	10·99	1·62	3·09
30987	9·61	10·10	0·49	0·93
34361	10·19	11 56	1·37	2·61
39246	9·73	11·22	1·49	2·84
856	8·74	10·84	2·10	4·01
Means	9·60	10·99	1·38	2·64

STRONGS.

Number.	Available gas.	Total gas.	Residual gas.	Excess Bi-Carbonate Soda.
36052	11·30	12·87	1·57	2·99
30547	12·10	13·61	1·51	2·88
34627	12·29	14·10	1·81	3·46
Means	11·89	13·53	1·63	3·11

SCHILLINGS' BEST.

39244	13·79	15·00	1·21	2·31

WOODILL'S GERMAN.

33740	8·37	8·67	0·30	0·58
33741	8·01	8·16	0·15	0·29
33742	8·51	8·84	0·33	0·63
33744	8·80	10·02	1·22	2·33
33745	8·44	8·74	0·30	0·58
33746	8·38	11·03	2·65	5·06
Means	8·42	9·24	0·82	1·58

NO BRAND NAMED.

34666	12·45	12·45	acid reaction	
34677	13.23	13·68	0·45	0.86

ALUM BAKING POWDERS.

Brand.	Number.	Available gas.	Total gas.	Residual gas.	Excess bi-carbonate soda.
Capital	34421	8·01	8·88	0·87	1·66
Champlain	34422	12·17	12·57	0·40	0·77
Excelsior	32748	9·70	10·46	0·76	1·45
Harvest home	30516	17·04	17·04	0·00	0·00
Kitchen Queen	32747	11·17	11·88	0·71	1·36
"	30994	11·02	11·85	0·82	1·57
"	30534	11·62	12·30	0·68	1·29
Means		11·27	12·01	0·74	1·40
Gem	853	12·30	12·30	neutral reaction.	
Laurier	34418	6·41	6·41	acid in excess.	
Ocean	32746	9·66	10·90	1·24	2·37
Princess	32755	13·28	14·30	1·02	1·95
Star	34631	16·34	16·69	0·35	0·67
?	34428	12·59	13·26	0·67	1·28
?	30507	9·55	10·30	0·75	1·43

ALUM PHOSPHATE POWDERS.

Brand.	Number.	Available gas.	Total gas.	Residual gas.	Excess bi-carbonate soda.
Art	32754	8·30	9·17	0·87	1·66
	36137	9·13	10·77	1·34	2·56
Means		8·86	9·97	1·10	2 11
Bee	31384	10·94	10·94	0·00	0·00
	29821	9·62	11·55	1·94	*3·70
	22743	1·95	1·95	acid.	
Means		7·50	8·15	0·64	1·23
Blue Ribbon	35748	11·17	12·08	0·91	1·74
	35446	10·05	11·35	1·30	2·49
	35448	10·40	11·69	1·29	2·46
	35454	10·30	11·79	1·49	2·84
Means		10·48	11 73	1·27	2·38
Chagnons	32750	10·81	12·85	2·04	3 89
Conley & Gost	35742	10·36	11·45	1·10	2·10
Cooks Choice	31389	8·00	9·58	1·58	3·01
Crescent	39249	5·75	5·75	acid.	
Crest	36139	12·00	13·35	1·35	2·58
	30538	10·84	13·03	2·19	4·18
	30542	10·56	12 70	2·14	4·09
Means		11·13	13·03	1·89	3·62
Export	34419	11·73	13·93	2·20	4·20
Feather Light	39243	12·16	13·96	1·80	3·44
Forest City	36136	10·38	11·49	1·11	2·12
	30512	9·04	11·18	2·14	4·09
	30543	10·90	12·60	1·70	3·25
	30992	10·44	12·07	1·63	3·11
Means		10·19	11·83	1·65	3·14
Gold Cross	34433	11·18	11·88	0·70	1·34
Golden Crown	34367	3·30	4·16	0·86	1·64
Gold Standard	35743	11·34	12·85	1·51	2·88
Gold Star	34426	12·24	12·24	0 00	0·00
Golden West	34373	12·07	13·41	1·34	2·56
Green & Whitakers	35453	9·00	10·83	1·83	3·49
Hortons	36145	12·11	13·32	1·21	2·31
Jersey Cream	36140	3·95	4·89	0·94	1·79
"	34639	7·06	7·77	0·71	1·36
Means		5·50	6·33	0 83	1·58
Kings	851	10·88	13·15	2·27	4·33

ALUM PHOSPHATE POWDERS—*Concluded.*

Brand.	Number.	Available gas.	Total gas.	Residual gas.	Excess Bi-carbonate Soda.
Magic	33737	9 52	11·31	1·79	3·41
	33743	5·76	7·34	1·58	3·01
	31382	12·02	13 67	1·63	3·11
	31387	7·17	9 15	1·98	3 78
	29817	8 44	9·54	1·10	2 10
	31420	11·79	13 47	1·68	3·21
	32752	12 28	14·01	1·73	3·30
	22740	12 49	14·10	1 61	3·08
	22746	12·41	14·12	1 71	3·27
	22748	10·23	11 62	1 39	2 67
	36141	10·80	12·43	1 63	3 11
	30508	7 08	8 50	1 42	2·71
	30522	12 31	13·94	1 63	3·11
	30533	13 16	14 40	1·24	2 37
	30996	11·53	13 54	2 01	3 84
	34628	13 34	15·04	1 70	3 25
	34638	13 13	14 26	1 13	2 16
	35744	12 05	13 81	1 76	3 36
	35747	11·78	13 65	1·87	3·57
	35447	12 77	14 14	1·37	2 61
	35451	13·55	14 85	1·30	2 49
	35455	11·26	12 46	1·20	2 29
	34360	13 07	14 68	1·61	3 08
	39245	22 41	14 51	2·10	4·01
	858	9 11	10 98	1·84	3·51
Means		11 18	12 78	1·61	3·06
Maple Leaf	36138	10 12	12 36	2·24	4 28
New York	855	11 60	12 42	0 82	1 57
Ocean	849	10·63	12 53	1 90	3·63
Ocean Wave	36143	11 29	13 00	1 71	3·27
O. K	852	8·55	9·24	0 73	1 39
Our Flag	34432	10 53	11 40	0 87	1·66
Purity	22747	10 12	11 42	1 31	2 50
Quaker	22744	12 59	14 47	1 88	3·59
Quaker Maid	35749	10 68	13 20	2 52	4 81
Queen	34424	9·95	11 87	1 92	3 67
Red Cross	35746	10·19	11 90	1 71	3 27
Reliance	35450	9 34	10 69	1 35	2 58
	39248	8 44	9 34	0 90	1 72
Means		8 89	10 01	1 12	2 15
Richmond Special	32753	10 70	13 30	2 60	4 97
St. Jerome	854	13 28	13 70	0 42	0 84
Stewarts	35741	11 85	13 37	1 52	2 90
Sutherland	35740	11 90	13 64	1 74	3·32
Tip Top	36144	13 51	11 30	0·79	1 51
White Lily	34369	10 66	11 74	1 08	2·06
White Rose	32749	9 65	10 20	0·55	1 05
White Star	35745	12 72	11 97	1 25	2·39
	34364	7 12	8 61	1·49	2·84
Means		8·92	10 29	1·37	2 61
White Swan	29820	13 46	14 27	0·81	1·55
?	34431	6 06	16 92	10·86	20 73
"	34611	11·03	12 37	1·34	2·56
"	34614	11 78	14 20	2 42	4·62
"	34633	7 44	8·02	0·58	1·11

I would respectfully recommend the publication of this report as Bulletin No. 174.

I have the honour to be, sir,

Your obedient servant,

A. McGILL, Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
			DISTRICT OF NOVA SCOTIA—				
1908.							
Oct. 14	Bak'g Powder	33737	R. P. Stevenson, Sydney, N.S.	3 tins.	30	E. W. Gillett Co., Toronto.	Magic Brand (195).
" 15	" ..	33738	Angus & Pollock, Truro, N.S.	3 " ..	45	Royal Baking Powder Co., New York	(Royal)..... ...
" 16	" .	33739	Cornwallis Trading Co., Canning, N.S.	3 " ..	45	Nat. Drug & Chem. Co. of Canada.	St. George's Brand
" 17	" ..	33740	H. W. Richardson, Windsor. N.S.	3 jars.	30	W. M. D. Pearman, Halifax, N.S.	Labeled Woodill's German Baking Powder.
" 19	" ..	33741	T. W. Brown, Halifax, N.S.	3 pkgs	15	" " ..	" ..
" 19	" ..	33742	A. J. Findlay, Halifax, N.S.	3 " ..	15	" " ..	" ..
" 20	" ..	33743	A. D. Bruce, Halifax, N.S.	3 tins.	30	E. W. Gillett Co., Toronto, Ont.	Magic Brand (Old label.)
" 20	" ..	33744	J. J. Skerry, Halifax, N.S.	3 pkgs	10	W. M. D. Pearman, Halifax, N.S.	Woodill's German.
" 21	" ..	33745	E. W. Crease & Co., Halifax, N.S.	3 " .	15	" " ..	" ..
" 21	" ..	33746	E. A. Thomas, Halifax, N.S.	3 " ..	15	Woodill Mf'g Co., Halifax, N.S.	(Woodill's new process.
			DISTRICT OF PRINCE EDWARD ISLAND—				
Oct. 28	Bak'g Powder	31381	Wright Bros., Victoria	3 cans	36	St. John Coffee & Spice Mills, St. John, N.B.	"Dearborn perfect" Baking Powder. Absolutely pure. A pure Cream of Tartar powder.
" 28	" ..	31382	Ewen McKinnon, Hampton.	3 " .	30	E. W. Gillett, Toronto.	Magic Baking Powder (238).
" 28	" ..	31383	J. F. Mahar, Charlottetown.	3 " ..	60	Royal Baking Powder Co., New York.	Absolutely pure. Vendors Authorized to guarantee it to Customers (Royal).
" 28	" ..	31384	F. L. Smith, Charlottetown.	3 " ..	30	Snowdon, Forbes & Co., Montreal.	"Bee" Brand Baking Powder.
" 28	" ..	31385	George Rackham, Charlottetown.	3 " ..	60	Johnson & Johnsan, Charlottetown.	"Johnson's" Baking Powder guaranteed chemically pure.
Nov. 3	" ..	31386	John McKenna, Charlottetown.	3 " ..	45	Nat. Drug & Chem. Co. of Canada, Ltd. Montreal.	(St. George's).....
" 5	" ..	31387	Thos. Wilkinson, Alberton.	3 " ..	45	E. W. Gillett & Co., Toronto.	"Magic" Baking Powder, (183).
" 6	" ..	31388	G. A. Shelfoon, Tignish.	3 " ..	75	Maritime Spice & Coffee Co. Ltd., St. John, N.B.	(Acorn)..... ....
" 6	" ..	31389	Robert Ellis, O'Leary	3 " ..	36	Cook's Choice Baking Powder.	(Cook's Choice). ..
" 10	" ..	31390	McDonald & Son, Murray River.	3 " ..	30	Pure Gold Mf'g. Co.	(Pure Gold) .....

SESSIONAL PAPER No. 14

BAKING POWDER.

Results of Analysis.						Character of Powder.	Style of Packaga.	Remarks, and Opinion of the Chief Analyst.
Carbon Dioxide.			Starch.					
Available.	Residual.	Total.	per cent.	Kind.				
R. J. WAUGH, INSPECTOR.								
p. c.	p. c.	p. c.	p. c.					
9·52	1·79	11·31	37·32	Maize		Alum Phosphate	Can	
11·55	0·75	12·30	21·80	"		Cream of Tartar	"	
9·57	1·53	11·10	25·18	"		"	"	
8·37	0·30	8·67	41·02	Wheat		"	Tumbler paper covered	
8·01	0·15	8·16	41·26	"		"	Paper Package	
8·51	0·33	8·84	38·93	"		"	"	
5·76	1·58	7·34	40·83	Maize		Alum Phosphate	Can	
8·80	1·22	10·02	35·68	Wheat		Cream of Tartar	Paper Package	
8·41	0·30	8·74	42·89	"		"	"	
8·38	2·65	11·03	37·38	"		"	"	
THEO. MOORE, INSPECTOR.								
10·54	1·44	11·98	17·05	Maize		Cream of Tartar	Can	
12·02	1·65	13·67	39·07	"		Alum Phosphate	"	
11·36	1·00	12·36	29·93	"		Cream of Tartar	"	
10·91	Slight acid rea't'n	10·94	46·50	"		Alum Phosphate	"	
10·79	1·51	12·30	19·90	Rice		Cream of Tartar	"	
10·55	1·55	12·10	23·46	Maize		"	"	
7·17	1·98	9·15	41·40	"		Alum Phosphate	"	
8·13	1·97	10·10	18·97	Maize and wheat.		Cream of Tartar	"	
8·00	1·58	9·58	49·07	Maize		Alum Phosphate	"	
9·46	0·18	9·64	19·26	"		Cream of Tartar	"	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
			DISTRICT OF NEW BRUNSWICK—				
1908.							
Oct. 15	Bak'g Powder	29814	F. S. Purdy, St. John, N.B.	3 tins.	30	Nat. Drug & Chem. Co., St. John, N.B.	St. George's Brand.
" 16	" ..	29815	G. S. Dibble, St. John, N.B.	3 " ..	30	Dearborn & Co., St. John, N.B.	Dearborn Perfect Baking Powder.
" 16	" ..	29816	Robt. McConnell, St. John, N.B.	3 " ..	45	Royal Baking Powder Co., New York.	Royal Baking Powder.
" 16	" ..	29817	Robertson & Co., St. John, N.B.	3 " ..	30	E. W. Gillett & Co., Ltd., Toronto	Magic Baking Powder, (154).
" 20	" ..	29818	G. E. Barbour Co. Ltd., St. John, N.B.	3 " ..	30	Vendors.....	Acorn Brand.....
Nov. 6	" ..	29819	D. E. Richard, Moncton, N.B.	3 " ..	30	Hamilton Coffee & Spice Co. Ltd.	McLaren's Pure Baking Powder "Invincible."
" 11	" ..	29820	S. Holdengraber, Bathurst, N.B.	3 " ..	36	The Robt. Greig Co., Toronto.	Greig's "White Swan" Baking Powder.
" 12	" .	29821	W. H. Marquis & Co., Campbellton, N.B.	3 " ..	36	Snowdon, Foebes & Co., Montreal and Quebec.	"Bee" Brand Baking Powder.
" 18	" ..	29822	C. H. Burtt, Fredericton, N.B.	3 " ..	30	Dearborn & Co., St. John, N.B.	Dearborn Perfect Baking Powder.
" 19	" ..	29823	J. Rankin Brown, Woodstock, N.B.	3 " .	45	Hamilton Coffee & Spice Co. Ltd., Hamilton, Ont.	McLaren's Pure Baking Powder "Invincible."
			DISTRICT OF QUEBEC—				
Oct. 9	Bak'g Powder	34418	Jos. Gaumond, St. Jean Port Joli.	3 Boxes	45	J. Morissette & Cie, Levis.	(Laurier).....
" 9	" ..	34419	A. Morin, St. Jean Port Joli.	3 " ..	38	Unknown.....	(Export),... .....
" 9	" ..	34420	Francois Lavallé, St. Jean Port Joli.	3 3..	50	.....	Magic Baking Powder (199).
" 9	" ..	34421	Gilbert Caron, St. Jean Port Joli.	3 "..	45	Langlois & Paradis, Quebec.	(Capital).....
" 10	" ..	34422	D. Clontier, Trois Saumon.	3 Pkgs	36	Bedard & Frere, Quebec.	(Champlain).....
" 10	" ..	34424	Moise Rosa, Trois Saumon.	3 Boxes	45	Quebec Preserving Co., Quebec.	(Queen).....
" 10	" ..	34426	Emilé Cloutier, Trois Saumon.	3 " ..	45	A. Carrier & fils, Levis.	(Gold Star),.....
" 10	" ..	34428	Arthur Caron, Trois Saumon.	½ lb ..	06	J. B. Bedard & Frere, Quebec	.....
" 10	" ..	34431	Mad. Louis Morneau, St. Jean Port Joli.	½ " ..	05	Abel Turcotte, Quebec.	.....
" 12	" ..	34432	Exavier Lavallé, St Aubert.	3 Boxes	35	S. H. Ewing & Sons, Montreal.	(Our Flag).....
" 12	" ..	3433[illegible]	" " ..	3 " ..	36	Talon Bros., Toronto.	(Gold Cross).....

SESSIONAL PAPER No. 14

BAKING POWDER.

Results of Analysis.						Character of Powder.	Style of Package.	Remarks, and Opinion of the Chief Analyst.
Carbon Dioxide			Starch.					
Available.	Residual.	Total.	per cent.	Kind.				
J. C. FERGUSON, INSPECTOR.								
p. c.	p. c.	p. c.	p. c.					
8·54	1·44	9·98	23·53	Maize.	Cream of Tartar	Can.		
11·87	0·98	12·85	14·91	"	"	"		
11·68	0·52	12·20	29·75	"	"	"		
8·44	1·10	9·54	41·29	"	Alum Phosphate	"		
9·22	3·21	12·43	17·78	"	Cream of Tartar	"		
8·75	1·02	9·77	19·39	"	"	"		
13·46	0·81	14·27	26·48	"	Alum Phosphate	"		
9·62	1·94	11·56	16·96	"	"	"		
12·10	1·41	13·51	14·17	"	Cream of Tartar	"		
9·10	1·24	10·34	19·90	"	"	"		
E. BELAND, INSPECTOR.								
6·41	Strong acid reaction	6·41	16·19	Rice	Alum	Can		Terra alba as filler.
11·73	2·20	13·93	36·39	Maize.	Alum Phosphate	"		
11·79	1·68	13·47	40·74	"	"	"		
8·01	0·87	8·88	40·88	"	Alum	"		
12·17	0·40	12·57	39·37	"	"	Paper Package		
9·95	1·92	11·87	37·91	"	Alum Phosphate	Can		
12·24	Slightly acid reaction	12·24	49·01	"	"	"		
12·59	0·67	13·26	45·39	"	Alum	Bottle put up by Inspector.		
6·06	10·86	16·92	27·58	"	Alum Phosphate	"		
10·53	0·87	11·40	48·63	"	"	Can.		
11·18	0·70	11·88	48·56	Rice and maize.	"	"		

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
							DISTRICT OF ST. HYACINTHE—
1908.							
Oct. 8	Bak'g Powder	848	Mongeau freres, Montreal.	3 pkgs	30	W. D. McLaren, Ltd., Montreal.	(Cook's Friend)....
" 8	" ..	849	N. Vincent, Montreal	3 " ..	15	Ocean Mill, Montreal	Ocean.....
" 8	" ..	850	English Provision Co., Montreal.	3 " ..	75	Royal Baking Powder, New York.	Royal.....
" 9	" ..	851	B. Robinovitch, Montreal.	3 " ..	15	P. Adelstein, Montreal.	King.....
" 12	" ..	852	C. F. Dufour, St. Agathe des Monts.	3 " ..	15	Raoul Provost, 1414 Boul, St. Laurent, Montreal.	O.K.....
" 13	" ..	853	J. B. Gougon, St. Jerome.	3 " ..	15	Hudon & Orsali, Montreal.	(Gem).....
" 13	" ..	854	B. Beaulieu, St. Jerome	3 " ..	30	Not known.....	St. Jerome.....
" 14	" ..	855	Adelard Hétu, Joliette	3 " ..	30	Marcotte, Leblanc & Cie, Sole Agents, Montreal.	New York.....
" 16	" ..	856	L. P. Gates, Viauville	3 " ..	30	Nat. Drug Co. of Canada, Montreal.	(St. George's).....
" 29	" ..	858	H. R. Smith, Coteau Station.	3 " ..	30	E. W. Gillett & Co., Toronto.	Magic.....
							DISTRICT OF MONTREAL—
Oct. 5	Bak'g Powder	32746	Joseph Chartier, St. Johns, P.Q.	3 tins.	15	.....	Ocean Brand.....
" 5	" ..	32747	Eugene Rodier, St. Johns, P.Q.	3 " ..	45	.....	Kitchen Queen Brand.
" 5	" ..	32748	F. Giroux, St. Johns, P.Q.	3 " ..	30	.....	Excelsior Brand ..
" 8	" ..	32749	C. Labelle & Cie, Sorel, P.Q.	3 " ..	30	J. V. Boudrias, Montreal.	White Rose Brand
" 8	" ..	32750	F. N. Chagnon, Sorel, P.Q.	3 " ..	45	Not given	Made specially for vendor; name not given 'Chagnon's Brand.'
" 9	" ..	32751	Bray Bros., Sherbrooke.	3 " ..	75	Nat. Drug & Chem. Co.	St. George's Brand
" 10	" ..	32752	McRae Bros., Richmond, P.Q.	3 " .	30	.....	Magic Brand .....
" 10	" ..	32753	A. W. Beausoliel, Richmond, P.Q.	3 " ..	60	Ocean Mills, Montreal.	Richmond Special Brand. Put up specially for vendor.
" 19	" ..	32754	F. X. Giroux, Farnham, P.Q.	3 " ..	36	Mayell & Co., Toronto, Ont.	"Art".. .....
" 20	" ..	32755	C. Vincent, Granby.	3 " ..	60	.....	Princess Brand, put up expressly for vendor. Name not given.

SESSIONAL PAPER No. 14

BAKING POWDER.

Results of Analysis.						Character of Powder.	Style of Package.	Remarks and Opinion of the Chief Analyst.
Carbon Dioxide.			Starch.					
Available.	Residual.	Total.	per cent.	Kind.				
J. C. ROULEAU, INSPECTOR.								
p. c.	p. c.	p. c.	p. c.					
9·27	1·13	10·40	27·81	Rice.	....	Cream of tartar ..	Paper package.	
10·63	1·90	12·53	38·34	Maize.	...	Alum phosphate	Can.	
12·67	0·25	12·92	28·91	"	....	Cream of tartar ..	"	
10·88	2·27	13·15	50·00	"	....	Alum phosphate ...	"	
8·55	0·73	9·28	15·86	"	...	" ...	Cardboard can	Terra alba as filler
12·30	Neutral reaction	12·30	51·98	"	.	Alum.... .. .	Can ...	
13·28	0·42	13·70	18·82	Wheat		Alum phosphate	"	
11·60	0·82	12·42	23·14	Maize.	.	"	"	
8·74	2·10	10·84	26·84	"	....	Cream of tartar ...	"	
9·11	1·84	10·98	42·23	"	...	Alum phosphate ..	"	
J. J. COSTIGAN, INSPECTOR.								
9·66	1·24	10·90	51·33	Maize.	....	Alum	Can.	
11·17	0·71	11·88	52·21	"	.	"	"	
9·70	0·76	10·46	34·18	Rice.	....	"	"	
9·65	0·55	10·20	54.34	Maize and wheat.		Alum phosphate	"	
10·81	2·04	12·85	33·03	Maize.	...	" ...	"	
10·14	0·85	10·99	24·75	"	....	Cream of tarter.....	"	
12·28	1·73	14·01	39·89	"	....	Alum phosphate .. .	"	
10·70	2·60	13·30	49·02	"	....	"	"	
8·30	0·87	9·17	35·93	"	....	"	"	
13·28	1·02	14·30	51·00	"	...	Alum	"	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
							DISTRICT OF OTTAWA—
1908.							
Sept. 30	Bak'g Powder	22739	J. C. Brown & Co., Vankleek Hill.	3 tins.	30	F. F. Dally Co., Hamilton.	English Cream Baking Powder.
Oct. 1	" ..	22740	Luloff & Co., Eganville.	3 " ..	25	E. W. Gillett & Co., Ltd., Toronto.	Magic Baking Powder, wholesome, pure.
" 3	" ..	22741	E. Wiltsie, Kemptville	3 " ..	30	F. J. Castle Co., Ottawa.	Labelled absolutely pure. (Royal).
" 6	" ..	22742	Geo. Illingorth, Almonte.	3 tumblers	30	C. H. Cochrane & Co., Ottawa.	Labelled "Buttermilk" Baking Powder. The highest standard of quality, strength and purity.
" 7	" ..	22743	P. A. Gagne, South Indian.	3 tins.	30	Snowdon, Forbes & Co., Montreal.	"Bee" Brand Baking Powder.
" 10	" ..	22744	Hamilton & Co., Finch	3 tumblers	30	Not known.....	"Quaker" Baking Powder.
" 12	" ..	22745	W. H. McCreery, Ottawa.	3 pkgs	24	Provost & Allard, Ottawa.	"Cook's Friend" Baking Powder. Prepared on correct chemical principles.
" 13	" ..	22746	A. Boivin, Ottawa...	1 tins.	30	E. W. Gillett & Co., Ltd., Toronto.	"Magic" (220) Baking Powder. Full weight, wholesome, pure.
" 13	" ..	22747	J. H. Primeau, Ottawa	3 " ..	30	The J. J. Fanning Co., Ottawa.	"Purity" Baking Powder.
" 13	" ..	22748	Forde Bros., Ottawa.	3 " ..	45	E. W. Gillett Co., Ltd., Toronto.	"Magic" (145, old label) Baking Powder. Full weight, wholesome, pure.
							DISTRICT OF KINGSTON—
Nov. 3	Bak'g Powder	36046	H. Crozier, Cobourg .	¾ lb..	30	Pure Gold, Toronto.	(Pure Gold)....
" 3	" ..	36047	T. R. Harvey & Son, Cobourg.	1½ " .	75	Royal Baking Powder Co.	(Royal).... .....
" 3	" ..	36048	Guillett Bros., Cobourg.	1½ " .	75	Nat. Drug Co.....	(St. George's).....
" 3	" ..	36049	J. D. McIntosh, Cobourg.	¾ " .	45	Cleveland's Superior.	(Cleveland's Superior).
" 3	" ..	36050	Hovey & Son, Cobourg	1½ " .	75	Royal Baking Powder.	(Royal).. ... .
" 3	" ..	36051	W. Burnet, Cobourg..	1½ " .	75	Cleveland's Superior.	(Cleveland's Superior).
" 3	" .	36052	S. Fourt, Port Hope .	1½ " .	75	W. T. Strong's, London.	(Strong's).....
" 3	" .	36053	J. Dunfee, Port Hope	¾ " .	45	Cleveland's Superior.	(Cleveland's Superior).
" 3	" ..	36054	T. H. Brown, Port Hope.	¾ " .	45	Royal Baking Powder.	(Royal). .....
" 3	" ..	36055	W. D. Stephens, Port Hope.	1½ " .	75	Pure Gold, Toronto.	(Pure Gold). .....

SESSIONAL PAPER No. 14

BAKING POWDER.

Results of Analysis.						Character of Powder.	Style of Package.	Remarks, and Opinion of the Chief Analyst.
Carbon Dioxide.			Starch.					
Available.	Residual.	Total.	per cent.	Kind.				
J. A. RICKEY, INSPECTOR.								
p. c.	p. c.	p. c.	p. c.					
12·12	0·94	13·06	52·12	Maize.	....	Cream of tartar.....	Tumbler.	
12·49	1·61	14·10	40·59	"	....	Alum phosphate. .. .	Can.	
11·59	0·79	12·39	28·47	"	....	Cream of tartar.....	"	
15·84	Neutral reaction	16·84	28·63	"	.. .	" .. .	Tumbler. ..	Contains alumina
1·95	Acid reaction.	1·95	32·87	"	....	Alum phosphate	Can.	
12·59	1·88	14·47	37·53	Rice.	.....	" .	Tumbler.	
9·61	1·33	10·94	27·21	"	.....	Cream of tartar	Paper package.	
12·41	1·71	14·12	39·94	Maize.	.	Alum phosphate	Can.	
10·12	1·31	11·42	35·50	"	....	" .	"	
10·23	1·39	11·62	39·75	"	.. .	"	"	
JAS. HOGAN, INSPECTOR.								
10·38	Neutral reaction	10·38	20·47	Maize.	...	Cream of tartar.....	Can.	
11·82	0·98	12·80	28·00	"	....	" ...	"	
9·37	1·62	10·99	24·44	"	....	"	"	
11·06	0·86	11·92	34·95	"	....	"	"	Contains free tartaric acid.
12·21	0·85	13·06	28·37	"	....	"	"	
11·08	0·79	11·87	33·96	"	...	" ...	"	
11·30	1·57	12·87	10·68	"	....	"	"	
10·22	0·65	10·87	34·67	"	....	"	"	
11·49	0·82	12·31	27·28	"	....	"	"	
10·38	0·45	10·83	19·30	"	....	"	"	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report
							DISTRICT OF TORONTO—
1908.							
Oct. 12	Bak'g Powder	36136	S. Scott, Durham ...	3 tins.	30	Gorman Eckert&Co., Ltd., London.	"Forest City" Baking powder pure and wholesome.
" 13	" ..	36137	Appel & Fisher, Walkerton.	3 " ..	75	Mayell&Co., Toronto	"Art" Baking Powder guaranteed for strength purity and wholesomeness.
" 13	" ..	36138	John Woods, Southampton.	3 " ..	45	W. H. Gillard & Co., Hamilton.	"Maple Leaf" Baking powder.
" 13	" ..	36139	Henry Ebert, Point Elgin.	3 pkg.	25	Canada Spice & Grocery Co., Ltd., London.	"Crest" Brand Baking powder.
" 14	" ..	36140	F. Carter & Sons, Paisley.	3 tins.	15	Lumsden Bros., Standard Mills, Hamilton.	"Jersey Cream" standard strength.
" 14	" ..	36141	J. N. Schefter, Mildmay.	3 " ..	30	E. W. Gillett Co. Ltd., Toronto.	"Magic" (195) Baking powder wholesome and pure.
" 15	" ..	36142	E. F. Graff & Co., Hanover.	3 " ..	60	Cleveland Baking Co., New York.	"Clevelands Superior" Baking powder, purity, strength, absolutely the best baking powder.
" 15	" ..	36143	Duncan McLean, Chesley.	3 " ..	30	Hamilton Coffee & Spice Co., Hamilton	"Ocean Wave" Baking powder.
" 16	" ..	36144	G. A. Graves, Wiarton.	3 " ..	30	Capstan Mfg. Co., Toronto.	"Tip Top" Baking powder, Vendor said it is a pure powder. Perfect satisfaction. Guaranteed.
" 16	" ..	36145	Horton Bros., Owen Sound.	3 " ..	30	Robt. Greig Co.....	"Hortons" Baking powder, mfg. expressly for Horton Bros
							DISTRICT OF LONDON—
Oct. 7	Bak'g Powder	30501	Hay the Grocer, Kincardine.	3 tins.	50	Eby Blain & Co....	(Clevelands Superior.)
" 7	" ..	30507	N. Krotz, Listowell..	3 pkg.	15	F. F. Dally Co., Hamilton.	....
" 7	" ..	30508	" ..	3 " ..	30	E. W. Gillett & Co., Toronto.	(Magie (180).....
" 8	" ..	30512	Cardeno Bros. Seaforth	3 cans	25	Gorman Eckert&Co., London.	(Forest City).....
" 12	" ..	30516	William Lindon, Clinton.	3 " ..	25	Coffee & Spice Co., London.	(Harvest Home)..
" 15	" .	30522	J. D. Smith & Co., St. Marys.	3 " ..	30	E. W. Gillett & Co., Toronto.	(Magie (229) . ..
" 15	" ..	30533	Mrs. Jane Davies, Stratford.	3 " ..	30	Stratford Wholesale Grocery Co, Stratford.	(" (238).....
	..	30534	H.T. Barker, Stratford	1 lb.	10	F. F. Dally Co., Hamilton.	(Kitchen Queen)..

SESSIONAL PAPER No. 14

BAKING POWDER.

Results of Analysis.					Character of Powder.	Style of Package.	Remarks and Opinion of the Chief Analyst.
Carbon Dioxide.			Starch.				
Available.	Residual.	Total.	per cent.	Kind.			
H. J. DAGER, INSPECTOR.							
p. c.	p. c.	p. c.	p. c.				
10·38	1·11	11·49	41·80	Maize....	Alum phosphate.....	Can.....	
9·43	1·34	10·77	32·28	"	"	"	
10·12	2·24	12·36	39·73	"	" ..	"	
12·00	1·35	13·35	42·51	" ...	"	Tumbler	
3·55	0·94	4·89	51·26	"	"	Can	
10·80	1·63	12·43	39·54	"	"	"	
10·14	0·67	10·81	35·33	" . .	Cream of tartar. ..	"	
11·29	1·71	13·00	41·14	"	Alum phosphate.....	"	
13·51	0·79	14·30	39·96	Wheat....	" ...	"	
12·11	1·21	13·32	33·17	Maize....	" .	"	
T. KIDD, INSPECTOR.							
10·15	0·62	10·77	23·94	Maize....	Cream of tartar. ..	Can	
9·55	0·75	10·30	48·70	"	Alum....	Tumbler, tin cover ...	
7·08	1·42	8·50	38·82	" ...	Alum phosphate.....	Can..	
9·04	2·14	11·18	40·94	"	"	"	
17·04	neutral reaction	17·04	37·41	" . ..	Alum.	"	
12·31	1·63	13·94	37·95	"	Alum phosphate. .. .	"	
13·16	1·24	14·40	39·01	"	"	"	
11·62	0·68	12·30	52·00	"	Alum	Paper bag, (broken).	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.
							DISTRICT OF LONDON—
1908.							
Oct. 16	Bak'g Powder.	30538	W. Stoneman, Mitchell	3 tins.	30	Canada Spice & Grocery Co., Ltd., London.	Crest Brand.. ....
" 15	" ..	30542	Michael Clinghammer, Grocer Merchant.	3 cups	30	" ..	Crest..... .
" 15	" ..	30543	John McKinna, Dublin, Ont.	3 " ..	30	Gorman & Eckert, London.	Forest City... ...
" 1	" ..	30547	J. A. Steward, Exter.	3 " ..	30	Not known...	(Strongs)..... ....
5	" ..	30980	O. C. Whitley, Goderich.	3 cans.	60	A. M. Smith & Co., London.	(Royal)..... .....
5	" ..	30987	Thomas Pringle, Goderich.	3 tins.	45	Elliot Marr & Co., London.	(St. Georges).... .
" 6	" ..	30992	G. M. Chamber & Co., Blyth.	3 " ..	30	Gorman Eckert & Co., London.	(Forest City).....
" 6	" ..	30994	William Bone, Wingham.	3 " ..	25	F. F. Dally Co., Hamilton.	(Kitchen Queen)..
" 6	" ..	30996	J. T. Lamenby, Wingham.	3 " ..	30	Not known	(Magic (233) .....
							DISTRICT OF WINDSOR—
Oct. 7	Bak'g Powder.	34611	H. P. Rosser, London	1 lb ..	25	Gorman Eckert Co., London.	....
" 8	" ..	34614	Rowntree & Fenger, London.	1 " ..	15	Canada Spice Co., London.	....
" 8	" ..	34627	T. W. Vincent, London.	3 tins.	30	W. T. Strong, London.	(Strongs)..... ....
" 8	" ..	34628	E. Noel, London.....	3 " ..	30	E. W. Gillett, Toronto.	(Magic (299).....
" 8	" ..	34631	R. J. Wood, London.	3 " ..	30	Canada Spice & Grocery Co., London.	(Star).....
" 9	" ..	34633	Cullis & Fleming, London.	1 lb ..	20	International Food Co., Toronto.	....
" 14	" ..	34638	Orendorf Bros., Ridgetown.	3 tins.	30	E. W. Gillett & Co., Toronto.	Original Package. (Magic (292).
" 14	" ..	34639	John Grass, Ridgetown.	3 " ..	30	Lumsden Bros., Toronto.	Original Package. (Jersey Cream).
Nov. 10	" ..	34666	W. W. Taylor, St. Thomas.	1 lb ..	25	W. W. Taylor, St. Thomas.	Taken from bottle in Vendors store.
" 11	" ..	34677	C. V. Thomson, Tillsonburg.	1 " ..	25	C. V. Thomson, Tillsonburg.	Vendor guaranteed in pure.
							DISTRICT OF MANITOBA—
Oct. 29	Bak'g Powder.	35740	Sutherland & Co., Winnipeg.	1 lb ..	75	.....	Put up expressly for Sutherland & Co., "Sutherland's Baking Powder".
" 29	" ..	35741	Wm. Stewart, Winnipeg.	½ " ..	45	....	Put up expressly for Stewart. "Stewart's Baking Powder".

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BAKING POWDER.

Results of Analysis.						Character of Powder.	Style of Package.	Remarks, and Opinion of the Chief Analyst.
Carbon Dioxide.			Starch.					
Available.	Residual.	Total.	per cent.	Kind.				
T. KIDD, INSPECTOR—*Concluded.*								
p. c.	p. c.	p. c.	p. c.					
10·84	2·19	13·03	42·53	Maize	Alum phosphate		Can	
10·56	2·14	12·70	41·21	"	"		Tumbler	
10·90	1·70	12·60	43·34	"	"		"	
12·10	1·51	13·61	10·57	"	Cream of tartar		Can	
12·45	0·77	13·22	27·66	"	"		"	
9·61	0·49	10·10	26·90	"	"		"	
10·44	1·63	12·07	43·65	"	Alum phosphate		"	
11·02	0·83	11·85	52·58	"	Alum		"	
11·53	2·01	13·54	39·77	"	Alum phosphate		"	
JOHN TALBOT, INSPECTOR.								
11·03	1·34	12·37	30·94	Maize	Alum phosphate		Paper bag	
11·78	2·42	14·20	37·87	"	"		"	
12·29	1·81	14·10	10·07	"	Cream of tartar		Can	
13·34	1·70	15·04	37·50	"	Alum phosphate		"	
16·34	0·35	16·69	34·25	"	Alum		"	
7·44	0·58	8·02	31·65	"	Alum phosphate		Paper bag	
13·13	1·13	14·26	37·79	"	"		Can	
7·06	0·71	7·77	53·61	"	"		"	
12·45	Acid reaction	12·45	5·40	Wheat	Cream of Tartar		Paper bag	
13·23	0·45	13·68	41·25	Maize	"		"	
A. C. LARIVIERE, INSPECTOR.								
11·90	1·74	13·64	41·29	Maize	Alum hosphate		Can	
11·85	1·52	13·37	44·73	"	"		"	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address or Manufacturer or Furnisher as given by the Vendor.	Inspector's Report
							DISTRICT OF MANITOBA—
1908.							
Oct. 29	Bak'g Powder.	35742	Conley & Yost, Winnipeg.	½ lb ..	40	....	Put up expressly for "Conley & Yost", grocers.
" 29	" ..	35743	Clements Arnason & Aalmanson, Winnipeg.	½ " ..	40	Gold Standard Mfg. Co., Winnipeg.	(Gold Standard)...
" 29	" ..	35744	C. Corneil, Winnipeg.	¼ " ..	30	E. W. Gillett Co., Ltd., Toronto.	"Magic Baking Powder" (246).
" 30	" ..	35745	A. Larocque, Winnipeg.	1 lb..	60	The White Star Mfg. Co., Winnipeg.	"White Star" Baking Powder.
" 30	" ..	35746	N. Tissman & Co., Winnipeg.	½ " ..	30	TheDysonCo.,Montreal & Winnipeg.	"Dyson's Red Cross" Baking Powder.
" 30	" ..	35747	A. Goldman, Pritchard Ave.	½ " .	30	E. W. Gillett & Co., Ltd., Toronto.	"Magic" Baking Powder.
30	" ..	35748	Moffat & Douglas, Selkirk Ave.	1 " ..	75	The Blue Ribbon Mfg. Co., Winnipeg, Man.	"The Blue Ribbon" Baking Powder.
" 30	" ..	35749	W. B. Francis, Winnipeg.	½ " ..	45	Western Mfg. Co., Winnipeg, Man.	"Quakermaid" Baking Powder.
							DISTRICT OF CALGARY—
Nov. 13	Bak'g Powder	35446	R. Peters, Calgary....	3 tins.	45	Blue Ribbon Ltd., Winnipeg.	(Blue Ribbon).
" 13	" ..	35447	A. Brewer, Calgary..	3 " ..	45	E. W. Gillett Co., Ltd., Toronto.	(Magic (232).
" 14	" ..	35448	R. Bloon, Calgary....	3 " ..	45	Blue Ribbon Ltd., Winnipeg.	(Blue Ribbon).
" 26	" ..	35449	A. Macdonald, Co., Lethbridge.	3 " ..	35	Price's Baking Powder Co., Winnipeg	(Dr. Price's Cream)
" 26	" ..	35450	G. Bradbur & Co., Lethbridge.	3 " ..	60	International Food Co., Toronto.	(Reliance)..... .....
Dec. 10	" .	35451	Shera & Co., Ltd., Ft. Saskatchewan.	3 " .	60	E. W. Gillett Co., Ltd., Toronto.	(Magic (244).
" 10	" ..	35452	J. Simons, Ft. Saskatchewan.	3 " ..	60	Dr. Price's, Chicago	(Dr. Price's Cream)
" 10	" ..	35453	Green & Whitaker, Ft. Saskatchewan.	3 " ..	45	Dyson Co., Winnipeg	(Green & Whitakers Pure).
" 10	" ..	35454	Wilkins & Jones, Ft. Saskatchewan.	3 " ..	75	Blue Ribbon Ltd., Winnipeg.	(Blue Ribbon).....
" 10	" ..	35455	Kimball & Son, Ft. Saskatchewan.	3 " ..	45	E. W. Gillett Co., Toronto.	(Magic old label (135).
							DISTRICT OF VANCOUVER—
Oct. 8	Bak'g Powder	34360	Dominion Grocery, Vancouver.	3 tins.	75	E. W. Gillett & Co., Ltd., Toronto.	Magic Brand Pure, (261).
" 8	" .	34361	Powell St. Grocery, Vancouver.	3 " ..	135	Nat. Drug & Chem. Co. of Canada.	St. George's Brand. A Pure Canadian food Production.
" 8	" ..	34362	E. C. Dixon, Vancouver.	3 " ..	75	Price Baking Powder Co., Chicago.	Composed of Pure grape, Cream of Tartar, Tartaric Acid, Bicarbonate of Soda and Corn Starch.

SESSIONAL PAPER No. 14

BAKING POWDER.

Results of Analysis.					Character of Powder.	Style of Package.	Remarks and Opinion of the Chief Analyst.
Carbon Dioxide.			Starch.				
Available.	Residual.	Total.	per cent.	Kind.			
A. C. LARIVIERE, INSPECTOR—*Concluded.*							
p. c.	p. c.	p. c.	p. c.				
10·36	1·10	11·45	45·40	Maize	Alum Phosphate	Can	
11·34	1·51	12·85	42·22	"	"	"	
12·05	1·76	13·81	42·10	"	"	"	
10·72	1·25	11·97	48·55	Wheat and Maize	"	"	
10·19	1·71	11·90	46·35	Maize	"	"	
11·78	1·87	13·65	40·04	"	"	"	
11·17	0·91	12·08	46·04	"	"	"	
10·68	2·52	13·20	48·76	"	"	"	
R. W. FLETCHER, INSPECTOR.							
10·05	2·52	11·35	46·15	Maize	Alum Phosphate	Can	
12·77	1·37	14·14	39·95	"	"	"	
10·40	1·29	11·69	46·90	"	"	"	
12·02	0·74	12·76	30·70	"	Cream of Tartar	"	Tartaric acid.
9·31	1·35	10·69	41·09	"	Alum Phosphate	"	
13·55	1·30	14·85	37·84	"	"	"	
12·23	0·63	12·86	31·04	"	Cream of Tartar	"	Tartaric acid.
9·00	1·83	10·83	44·24	"	Alum Phosphate	"	
10·30	1·49	11·79	46·06	"	"	"	
11·26	1·20	12·46	37·06	"	"	"	
J. F. POWER, INSPECTOR.							
13·07	1·61	14·68	36·29	Maize	Alum Phosphate	Can	
10·19	1·37	11·56	24·92	"	Cream of Tartar	"	
11·59	0·86	12·45	30·00	"	"	"	Tartaric acid.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address or Manufacturer or Furnisher as given by the Vendor.	Inspector's Report
						DISTRICT OF VANCOUVER—	
1908.							
Oct. 8	Bak'g Powder.	34363	H. T. Doo, Vancouver	3 tins.	75	Golden West Baking Powder Co., Vancouver.	"Go'den Wes Brand".
" 8	" ..	34364	A. Pomfret, Vancouver.	3 " ..	60	White Star Mfg. Co., Winnipeg.	White Star Brand Best in the world.
" 8	" ..	34365	J. Donald, Vancouver	3 " ..	120	Royal Baking Powder Co., New Jersey	(Royal) Absolutely Pure grocers are authorized to guarantee.
" 9	" ..	34366	J. S. Smith, Vancouver.	3 " ..	100	J. W. Charlsworth, Vancouver.	This class of powder is recommended by the gov. analyst to without doubt reach the highest perfection attainable. (Perfect Cream of Tartar).
" 9	" ..	34367	J. Halkins, Vancouver	3 " .	60	Puritain Baking Powder and Extract Co., Vancouver.	"Golden Crown Brand" Pure and Sure.
" 9	" ..	34368	Poineer Grocery, Vancouver.	3 " ..	120	Hamilton Coffee & Spice Co.	Guaranteed absolutely pure. Contains no alum or phosphates, ammonia, (McLaren's Invincible).
" 9	" ..	34369	Webster Bros., Vancouver.	3 " ..	75	Not known.....	"White Lily Brand" specially put up for Webster Bros.
						DISTRICT OF VICTORIA—	
Nov. 18	Bak'g Powder	39242	Windsor Grocery Co., Victoria, B.C.	tins.	75	J. H. Todd & Sons, Victoria, B.C.	"Dr. Price's Cream" Baking Powder.
" 18	" ..	39243	The Saunders Grocery Co., Victoria, B.C	3 " ..	30	Victoria Coffee & Spice Mills, Victoria, B.C.	"Feather Light" Baking Powder.
" 19	" ..	39244	Harrison & MacDonald, Victoria, B.C.	3 " ..	75	A. Shilling & Co., San Francisco, Cal.	"Shilling's Best" Baking Powder.
" 19	" ..	39245	The West End Grocery Co., Victoria, B.C.	3 " ..	75	R. P. Rithet & Co., Victoria, B.C.	"Magic" (261) ...
" 19	" ..	39246	Fred Carne, Victoria, B.C.	3 " ..	75	S. Leiser & Co., Victoria, B.C.	"St. George".....
" 20	" ..	39247	Jalland Bros., Victoria, B.C.	3 " ..	75	E. W. Gillett Co., Toronto, Ont.	"Imperial". .....
" 20	" ..	39248	Acton Bros., Victoria, B.C.	3 " ..	75	International Food Co., Toronto, Ont.	"Reliance".....
" 20	" ..	39249	The Victoria Rochdale Co-op. Assoc., Ltd., Victoria, B.C.	3 " ..	105	Cresent Mfg. Co., Seattle, W. t.	"Cresent".....
" 20	" ..	39250	Wm. B. Hall, Victoria, B.C.	3 " ..	120	Hamilton Coffee & Spice Mills, Hamilton, Ont.	"McLaren's Invincible".
" 23	" ..	39251	Dixie H. Ross, Victoria, B.C.	3 " ..	75	Wilson Bros., Victoria, B.C.	"Royal".

SESSIONAL PAPER No. 14

BAKING POWDER.

Results of Analysis.					Character of Powder.	Style of Package.	Remarks and Opinion of the Chief Analyst.
Carbon Dioxide.			Starch.				
Available.	Residual.	Total.	per cent.	Kind.			
J. F. POWER, INSPECTOR—*Concluded.*							
p. c.	p. c.	p. c.	p. c.				
12·07	1·31	13·41	43·80	Maize....	Alum Phosphate.....	Can.....	
7·12	1·49	8·61	50·64	" ...	"	"	
12·44	1·00	13·44	28·83	"	Cream of Tartar	"	
9·15	neutral reaction	9·15	22·03	"	" ...	"	
3·30	0·86	4·16	47·20	" ...	Alum Phosphate.....	"	
10·28	0·55	10·83	19·56	"	Cream of Tartar	"	
10·66	1·80	11·74	41·04	"	Alum Phosphate.....	"	
D. O'SULLIVAN, INSPECTOR.							
11·80	1·04	12·84	28·28	Maize....	Cream of Tartar	Can	Tartaric acid.
12·16	1·80	13·96	46·10	"	Alum Phosphate.....	"	
13·79	1·21	15·00	No Starch	.....	Cream of Tartar	"	
12·41	2·10	14·51	37·05	Maize....	Alum Phosphate.....	"	
9·73	1·49	11·22	24·25	" ...	Cream of Tartar	"	
7·68	0·80	7·88	18·44	"	"	"	
8·44	0·90	9·34	40·63	"	Alum Phosphate.....	"	
5·75	Slightly acid reaction.	5·75	36·50	" ...	"	"	
11·58	0·96	12·54	18·43	"	Cream of Tartar	"	
11·17	0·78	11·95	30·29	" ...	"	"	

APPENDIX Y.

BULLETIN No. 175—LIQUOR ARSENICALIS (FOWLER'S SOLUTION).

OTTAWA, February 26, 1909.

WM. HIMSWORTH, Esq.,
Acting Deputy Minister of Inland Revenue.

SIR,—I have the honour to hand you a report upon 75 samples of *Liquor Arsenicalis*, commonly known as Fowler's Solution, collected throughout Canada in January of this year.

This important drug is defined as follows by the British Pharmacopœia :—

Liquor Arsenicalis.—Arsenical Solution.

Synonyms :—Liquor Potassæ Arsenitis ; Fowler's Solution.

	Imperial.	Metric.
Arsenious Anhydride in Powder.....	87½ grains	10 grammes.
Potassium Carbonate.....	87½ "	10 "
Compound Tincture of Lavender.....	5 fld. drams.	31·25 cubic centimetres
Distilled Water.....	a sufficient quantity.	

Heat the Arsenious Anhydride and the Potassium Carbonate with 10 fluid ounces (or five hundred cubic centimetres) of distilled water in a one-pint (or one litre) flask until a clear solution is obtained, cool, add the Compound Tincture of Lavender and sufficient distilled water to produce one pint (or one thousand cubic centimetres) of the solution.

Characters and Tests.—A reddish liquid, alkaline to test paper, and having the odour of lavender, 25 cubic centimetres, neutralized with *hydrochloric acid*, and diluted with *water*, should discharge the colour of 50·8 to 50·9 cubic centimetres of the *volumetric solution of Iodine*, the presence of a slight excess of *sodium bi-carbonate* being maintained throughout the operation.

Dose.—2 to 8 minims.

110 minims contain 1 grain of Arsenious Anhydride.

100 cubic centimetres contain 1 gramme.

It is identical with the Liquor Potassii Arsenitis of the United States Pharmacopœia.

It contains one (1) per cent of Arsenious Acid (As_2O_3) weight in volume, and it is quite apparent that the British Pharmacopœia requires a degree of accuracy within one five hundredth ($\frac{1}{500}$) of this amount, or 0·002 per cent Arsenic. The method of assay prescribed by the Pharmacopœia is sufficiently delicate, if carried out with due precaution, to indicate this degree of accuracy. Making all necessary allowance, I conceive that no freshly prepared solution should vary more than 0·010 per cent of arsenic from the standard or normal fixed. Fifteen (15) samples now reported fall within, or closely approximate to this limit, and these are designated in the Table as "Accurate" or nearly accurate." Of the remaining samples, eighteen (18) are found to vary from the standard by ten times this amount, or more; (0·100 per cent Arsenic) and, of these, five (5) samples differ from the standard by 0·250 per cent Arsenic, while two (2) samples contain only half the amount of Arsenic required by the Pharmacopœia.

The following synopsis presents a classification;—

Liquor Arsenicalis.

	Samples.
Within 0·010 of B. P. requirement	15
" 0·050 " "	21
Beyond 0·100 " "	18
Not classified	21
Total	75

While it would be correct, under Sec. 7 of the Adulteration Act (R.S. 1906, chap. 133), to declare most of the samples now reported, *adulterated*, I am of opinion that the object of the Act will be best attained by a publication of this report, and especially so, since this is the first occasion upon which the article named has been subjected to official inspection.

It is further to be remembered that a certain practicable limit of accuracy or degree of variation from an absolute standard, must be allowed for. This limit has not been fixed, and is only suggested or implied by the pharmacopœia itself, not explicitly stated therein.

I would respectfully suggest the wisdom of adopting 0·020 per cent of arsenic as a maximum limit of variability in Liquor Arsenicalis; and beg to recommend the publication of this report as Bulletin No. 175.

I have the honour to be, sir,

Your obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity	Cost. Cents.	Name and Address of Manufacturer of Furnisher as given by the Vendor.
			DISTRICT OF NOVA SCOTIA—			
1909.						
Jan. 12	Liquor Arsenicalis (Fowler's Solution.)	33826	G. A. Burbidge, Halifax, N.S.	4 oz..	40	Nat. Drug & Chem. Co., Halifax, N.S.
" 12	" ..	33827	Brown Bros. & Co., Halifax, N.S.	4 " ..	10	" " ..
" 14	" ..	33828	Jas. D. Walsh, Halifax, N.S.	4 " ..	20	Vendor..... ....
" 20	" ..	33829	A. E. Smith, Truro, N.S.....	4 " ..	25	Unknown ....
" 20	" ..	33830	E. J. Butcher, Dartmouth, N.S.	4 " ..	35	Nat. Drug & Chem. Co., Halifax, N.S.
			DISTRICT OF PRINCE EDWARD ISLAND—			
Jan. 7	Liquor Arsenicalis (Fowler's Solution.)	31443	McDonald & McKinnon, Charlottetown.	4 oz..	15	McDonald & McKinnon, Charlottetown.
" 7	" ..	31444	C. D. Rankin, Charlottetown.	4 " .	20	Lyman, Knox & Co. Ltd., Montreal.
" 11	" ..	31445	Dr. John McNeill, Summerside.	4 " ..	15	Nat. Drug & Chem. Co., Halifax.
" 12	" ..	31446	Jardine & Bernard, Kensington.	4 " ..	15	Nat. Drug Co., Montreal....
" 14	" ..	31447	J. G. Jamieson, Charlottetown.	4 " ..	20	J. G. Jamieson, Charlottetown.
			DISTRICT OF NEW BRUNSWICK—			
Jan. 11	Liquor Arsenicalis (Fowler's Solution).	29877	E. Clinton Brown, St. John, N.B.	4 oz..	40	E. Clinton Brown, St. John, N.B.
" 16	" ..	29878	Chas. A. Burchill, Fredericton, N.B.	4 " ..	40	Chas. A. Burchill, Fredericton, N.B.
" 18	" ..	29879	C. A. McKean, Woodstock, N.B.	4 " ..	25	Nat. Drug & Chem. Co. Ltd., St. John, N.B.
" 25	" ..	29880	B. J. Sharp, Sussex, N.B.....	4 " ..	15	B. J. Sharp, Sussex, N.B....
" 26	" ..	29881	Fairweather Bros., Moncton, N.B.	4 " ..	20	Fairweather Bros., Moncton, N.B.
			DISTRICT OF QUEBEC—			
Jan. 11	Liquor Arsenicalis (Fowler's Solution.)	36803	A. Martineau, 734 St. Valier St., Quebec.	4 oz..	10	A. Martineau, Quebec.....
" 11	" ..	36804	Jos. Masson, 808 St. Valier St., Quebec.	4 " ..	10	Jos. Masson, Quebec..... ..
" 12	" ..	36805	G. P. Plamondon, 122 St. Joseph St., Quebec.	4 " ..	15	A. Leclerc, Quebec.....
" 12	" ..	36806	F. Lachevrotière, 224 St. Jean St., Quebec	4 " ..	30	Lyman Sons, Montreal.. .. ..
" 42	" ..	36897	C. P. Delisle, 379½ St. Jean St., Quebec.	4 " ..	15	Brunette et Cie, Quebec....

SESSIONAL PAPER No. 14

LIQUOR ARSENICALIS (FOWLER'S SOLUTION.)

Inspector's Report.	Results of Analysis.				Remarks and Opinion of the Chief Analyst.
	Cubic Centimetres Deci-Normal Iodine used for 25 c.c. of Sample.	Equivalent Arsenic per Centage (B. P. requires 1,000).	Below Standard p. c. Arsenic.	Above Standard p. c. Arsenic.	
R. J. WAUGH, INSPECTOR.					
.....	39·9	0·782	0·218	.....	Too great deviation from standard.
.....	49·0	0·964	0·036	.....	.....
.....	45·4	0·852	0·108	.....	Too great deviation from standard.
.....	40·2	0·788	0·212	.....	Too great deviation from standard.
.....	48·2	0·948	0·052	.....	.....
THEO. MOORE, INSPECTOR.					
.....	48·3	0·950	0·050	.....	.....
.....	49·5	0·974	0·026	.....	.....
.....	45·7	0·898	0·102	.....	Too great deviation from standard.
.....	50·5	0·994	0·006	.....	Accurate.
.....	49·0	0·964	0·036	.....	.....
J. C FERGUSON, INSPECTOR.					
.....	47·9	0·942	0·058	.....	.....
.....	50·3	0·990	0·010	.....	Accurate.
.....	50·3	0·990	0·010	.....	Accurate.
.....	34·3	0·670	0·330	.....	Too great deviation from standard.
.....	49·5	0·974	0·026	.....	.....
E. BELAND, INSPECTOR.					
.....	37·7	0·738	0·262	.....	Too great deviation from standard.
.....	41·9	0·882	0·118	.....	Too great deviation from standard.
.....	54·9	1·082	.....	0·082	.....
.....	50·0	0·984	0·016	.....	Nearly accurate.
.....	50·9	1·002	.....	0·002	Accurate.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
			DISTRICT OF ST. HYACINTHE—			
1909.						
Jan. 11	Liquor Arsenicalis (Fowler's Solution.)	901	Pharmacie Provost, Sorel.....	2½ oz..	05	Lyman Sons & Co., Montreal.
" 13	" ..	902	Pharmacie Massicotte, Victoriaville.	4 " ..	10	Lyman Knox, Montreal....
" 14	" ..	903	E. C. Drolet, Coaticook..	4 " ..	10	M. Baldwin ....
" 19	" ..	904	Dr. J. B. Comeau, Farnham..	4 " ..	40	Lyman Sons & Co., Montreal.
" 21	" ..	905	Pharmacie Ostigny.....	4 " ..	15	Vendor ....
			DISTRICT OF MONTREAL—			
Jan. 6	Liquor Arsenicalis (Fowler's Solution.)	32681	J. J. Weinfield, 458 St. Lawrence St., Montreal.	4 oz..	50	....
" 7	" ..	32682	Dr. J. T. A. Gauthier, Valleyfield.	4 " ..	50	Lyman Sons & Co., Montreal.
" 8	" ..	32683	A. Goyette, 141 St. Catherine E., Montreal.	4 " ..	25	....
" 13	" ..	32684	Dr. Henri Campeau, 1393 Notre Dame W., Montreal.	4 " ..	25	Not known..... .....
" 14	" ..	32685	Dr. J. A. Clement, 14th Ave., Lachine.	4 " ..	20	Kent & Stevenson, Montreal.
			DISTRICT OF OTTAWA—			
Jan. 5	Liquor Arsenicalis (Fowler's Solution.)	22796	W. A. McCrea, Hawkesbury..	4 oz..	20	Kerry Watson, Montreal....
" 12	" ..	22797	Geo. E. Moore, Carleton Place	4 " ..	35	Nat. Drug & Chem. Co., Ottawa.
" 18	" ..	22898	W. C. Hanes, Ottawa	4 " ..	40	Not known.....
" 21	" ..	22799	W. F. Gibson, Ottawa.....	4 " ..	35	Nat. Drug & Chem. Co., Ottawa.
" 21	" ..	22800	J. Skinner & Son, Ottawa	4 " ..	35	Vendor..... ....
			DISTRICT OF KINGSTON—			
Jan. 8	Liquor Arsenicalis (Fowler's Solution.)	39426	W. W. Gibson, Kingston... .	4 oz..	40	W. W, Gibson, Kingston....
" 11	" ..	39427	D. Blecker, Belleville.....	4 " ..	15	Nat. Drug Co... .....
" 11	" ..	39428	A. L. Geen, Belleville.....	4 " ..	20	" .....
" 11	" ..	39429	W. J. B. Davison, Port Hope.	4 " ..	20	W. J. B. Davison, Port Hope.
" 12	" ..	39430	McDermid & Jury, Peterboro.	4 " ..	20	Lyman Bros., Toronto ... ..

SESSIONAL PAPER No. 14

ARSENICALIS (FOWLERS SOLUTION.)

Inspector's Report.	Results of Analysis.				Remarks and Opinion of the Chief Analyst.
	Cubic Centimetres Deci-Normal Iodine used for 25 cc. of Sample.	Equivalent Arsenic per Centage. (B. P. requires 1,000.)	Below Standard p. c. Arsenic.	Above Standard p. c. Arsenic.	
J. C. ROULEAU, INSPECTOR.					
.....	47·6	0·936	0·064	.....	.....
.....	51·5	1·014	.....	0·014	Nearly accurate.
.....	50·5	0·994	0·006	.....	Accurate.
.....	52·2	1·028	.....	0·028	.....
.....	47·5	0·934	0·066	.....	.....
J. J. COSTIGAN, INSPECTOR.					
.....	50·9	1·002	.....	0·002	Accurate.
.....	51·6	1·016	.....	0·016	Nearly accurate.
.....	48·7	0·958	0·042	.....	.....
.....	28·9	0·562	0·438	.....	Too great deviation from standard.
.....	42·5	0·831	0·166	.....	Too great deviation from standard.
J. A. RICKEY, INSPECTOR.					
.....	47·7	0·938	0·062	.....	.....
.....	48·7	0·958	0·042	.....	.....
.....	45·6	0·896	0·104	.....	Too great deviation from standard.
.....	48·7	0·958	0·042	.....	.....
.....	50·7	0·998	0·002	.....	Accurate.
JAS. HOGAN, INSPECTOR.					
.....	20·8	0·400	0·600	.....	Too great deviation from standard.
.....	47·6	0·936	0·064	.....	.....
.....	45·0	0·884	0·116	.....	Too great deviation from standard.
.....	48·0	0·944	0·056	.....	
.....	49·1	0·966	0·034	.....	

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
			DISTRICT OF TORONTO—			
1909.						
Jan. 11	Liquor Arsenicalis (Fowler's Solution).	36187	A. Boyle, Cor. York and Magill Sts., Hamilton.	4 oz.	20	J. Winer & Co., Ltd., Hamilton.
" 12	" ..	36188	J. A. Zimmerman, Hamilton .	4 " ..	25	Vendor .....
" 13	" ..	36189	A. C. Thorbourne, Niagara Falls.	4 " ..	10	" .....
" 15	" ..	36190	W. Erskine, St. Catharines ...	4 " ..	20	Lyman Bros., Ltd., Toronto.
" 19	" ..	36191	The Burgess Powell Co., Ltd., Toronto.	4 " ..	25	" " ..
			DISTRICT OF LONDON—			
Jan. 7	Liquor Arsenicalis (Fowler's Solution).	30558	Jas. Wilson, Goderich.....	4 oz ..	30	Not known..... .....
" 13	" ..	30575	W. A. McIntyre, St. Mary's..	4 " ..	40	Vendor ....
" 14	" ..	30583	R. J. Eason, Stratford	4 " ..	35	" . ...
" 16	" ..	30584	Walter Beattie, Guelph	4 " ..	40	" ....
" 16	" ..	30590	A. B. Petrie, Guelph..	4 " ..	40	" .....
			DISTRICT OF WINDSOR—			
Jan. 7	Liquor Arsenicalis (Fowler's Solution).	34736	Clement Drug Co., Sarnia	4 oz ..	40	Clement Drug Co., Sarnia...
" 7	" ..	34738	Geo. G. Ingersoll, Sarnia.....	4 " ..	40	Nat. Drug Co., London, O..
" 8	" ..	34744	Jackson & Co., Petrolia.....	4 " ..	25	" " ..
" 9	" ..	34747	G. G. Stevenson, London, O..	4 " ..	20	Vendors..... .. ..
" 12	" ..	34754	Anderson & Nelles, London, O.	4 " ..	20	Anderson & Nelles, London, O.
			DISTRICT OF MANITOBA—			
Jan. 12	Liquor Arsenicalis (Fowler's Solution).	35826	P. F. Braund, Winnipeg.....	4 oz .	35	Not given ....
					20	The Bole Drug Co., Winnipeg
" 12	" ..	35827	Austin's Drug Store, Winnipeg	4 " ..		
" 12	" ..	35828	Cranston's Drug Store, Winnipeg.	4 " ..	25	Not given . . ..
" 13	" ..	35829	Kennedy's Pharmacy, Brandon.	4 " ..	25	Kennedy's Pharmacy, Brandon, Man.
" 13	" ..	35830	W. J. Halpin & Co., Brandon.	4 " ..	25	Not given .....

SESSIONAL PAPER No. 14

ARSENICALIS (FOWLER'S SOLUTION).

Inspector's Report.	Results of Analysis.				Remarks and Opinion of the Chief Analyst.
	Cubic Centimetres Decinormal Iodine used for 25 cc. of Sample.	Equivalent Arsenic percentage. (B. P. requires 1,000).	Below Standard p.c. Arsenic.	Above Standard p.c. Arsenic.	
H. J. DAGER, INSPECTOR.					
	46·9	0·922	0·078		
	47·4	0·932	0·068		
	45·2	0·888	0·112		Too great deviation from standard.
	49·0	0·964	0·036		
	48·5	0·954	0·046		
T. KIDD, INSPECTOR.					
	54·2	1·068		0·068	
	42·6	0·836	0·164		Too great deviation from standard.
	54·1	1·066		0·066	
	54·4	1·072		0·072	
	39·6	0·776	0·224		" "
J. TALBOT, INSPECTOR.					
	45·9	0·902	0·098		
	50·2	0·988	0·012		Nearly accurate.
	46·4	0·912	0·088		
	49·4	0·972	0·028		
	52·2	1·028		0·028	
A. C. LARIVIÈRE, INSPECTOR.					
	50·6	0·996	0·004		Accurate.
	25·8	0·500	0·500		Too great deviation from standard.
	46·3	0·910	0·090		
	50·1	0·984	0·016		
	46·8	0·920	0·080		

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
			DISTRICT OF CALGARY—			
1909.						
Jan. 15	Liquor Arsenicalis (Fowler's Solution).	35376	C. A. Wallace, Calgary	4 oz.	50	Nat. Drug and Chem. Co., Montreal.
" 15	"	35377	McCutcheon & McGill, Calgary	4 "	50	" "
" 15	"	35378	O. H. Bott, Calgary	4 "	25	O. H. Bott, Calgary
" 15	"	35379	Jas. Findlay Drug Co., Calgary	4 "	25	Lyman & Sons, Calgary
" 15	"	35380	Curry & Cope, Calgary	4 "	25	Curry & Cope, Calgary
			DISTRICT OF VANCOUVER—			
Jan. 29	Liquor Arsenicalis (Fowler's Solution).	37571	The Public Drug Co., Vancouver.	4 oz.	60	Vendor
" 29	"	37572	Woods Pharmacy, Vancouver	4 "	50	"
" 29	"	27573	McDonald & Burns, Vancouver	4 "	25	Nat. Drug Co., Vancouver
" 29	"	37574	W. A. Harrison, Vancouver	4 "	50	Vendor
" 29	"	37575	McDowell, Atkins & Watson, Vancouver.	4 "	10	Not known
			DISTRICT OF VICTORIA—			
Jan. 26	Liquor Arsenicalis (Fowler's Solution).	39284	Dean & Hiscocks, Victoria	4 oz.	25	Vendors
" 26	"	39285	Hall & Co., Victoria	4 "	30	"
" 26	"	39286	W. Jackson & Co., Victoria	4 "	25	"
" 27	"	39287	W. E. Terry, Victoria	4 "	40	"
" 39	"	39288	D. E. Campbell, Victoria	4 "	35	"

SESSIONAL PAPER No. 14

ARSENICALIS (FOWLER'S SOLUTION).

Inspector's Report.	Results of Analysis.				Remarks and Opinion of the Chief Analyst.
	Cubic Centimetres Decinormal Iodine used for 25 cc. of Sample.	Equivalent Arsenic per centage. (B. P. requires 1,000).	Below Standard p. c. Arsenic.	Above Standard p. c. Arsenic.	
R. W. FLETCHER, INSPECTOR.					
	48·8	0·960	0·040		
	42·6	0·836	0·164		Too great deviation from standard.
	46·4	0·912	0·083		
	50·3	0·990	0·010		Accurate.
	50·4	0·992	0·008		"
J. F. POWER, INSPECTOR.					
	49·2	0·968	0·032		
	46·2	0·908	0·092		
	46·9	0·922	0·078		
	51·4	1·012		0·012	Nearly accurate.
	48·3	0·950	0·050		
D. O'SULLIVAN, INSPECTOR.					
	49·9	0·982	0·018		
	43·5	0·834	0·166		Too great deviation from standard.
	50·1	0·986	0·014		Nearly accurate.
	49·3	0·970	0·030		
	46·5	0·914	0·086		

APPENDIX Z.

BULLETIN No. 176—MUSTARD.

Ottawa, March 1, 1909.

Wm. Himsworth, Esq.,
Acting Deputy Minister of Inland Revenue.

Sir,—I beg to report upon 76 samples of Mustard, collected throughout the Dominion in January of this year.

Mustard has been made the subject of examination in this laboratory on two former occasions, viz.;—in 1890 (95 samples, see Bulletin 19), and in 1897 (66 samples, see Bulletin 50)

In Bulletin No. 19, the late Chief Analyst directs attention to the need of definite standards for mustard; and suggests the adoption of a minimum limit of 30 per cent fixed oil for genuine mustard, and of 22 per cent for compound mustard.

The importance of legalizing a definition of mustard is undeniable, and until this is done, I find it quite impossible to declare adulteration in any of the extremely variable samples, sold under this name.

That such definition should depend mainly upon a percentage of fixed oil in the article, is not so clear. The fixed oil of mustard is present in mustard seeds (both black and white) to the extent of about 25 per cent: and the sifted farina of mustard contains this oil to about 35 per cent or slightly higher. (Piesse and Stansell; The Analyst, 1880, p. 161).

But the value of mustard as a condiment does not depend upon the content of fixed oil. White mustard, which *per se*, has little condimental value, contains as much fixed oil as black mustard. Nor did the late Chief Analyst suggest the determination of fixed oil in mustard as being itself directly an element of value in the condiment, but rather as a means of ascertaining the amount of foreign material present in admixtures. This added material is usually starch or turmeric, and is practically fat free.

Since the fixed oil in mustard seed is fairly constant, the suggestion to make the percentage of fixed oil in mustard flour a basis for calculating the amount of foreign matter added is a reasonable one, provided that mustard seed is always ground in its natural state, i.e., without removal of any portion of the fixed oil. This, however, is not the case. The oil greatly interferes with the pulverizing of the seed, and over 75 per cent of it may be removed by pressure before grinding, so that estimation of the fixed oil in the finished product, affords no trustworthy basis for calculation as to foreign matter added. The fixed oil of mustard is a bland oil, applicable to various dietetic purposes, but quite devoid of such condimental properties as are valued in mustard.

The characteristic pungency of mustard is due to a volatile oil, only traces of which exist in the dry mustard, but which is developed, by the action of a ferment (myrosin) upon potassium myronate, in the presence of water. It is only upon mixing mustard with water that the pungent flavour is developed. Potassium myronate is present to the extent of about 1.5 per cent in black mustard seed, and is practically absent from white mustard. This latter contains only traces of volatile oil as such, while about half of one per cent is present in the black seed. It follows, from what has been said, that the better way of valuing mustard, would be by direct estimation of its volatile oil, after a treatment converting potassium myronate into this last.

It is found in practice, that although the white mustard seed contains no potassium myronate, its presence in admixture with the black seed assists in the generation of volatile oil from the latter; and for this reason the two varieties are ground together. This is due to the fact that a ferment (myrosin) whose presence determines the con-

version of potassium myronate into volatile oil of mustard, is more largely present in white than in black mustard, although the glucoside (*sinigrin*) upon which it acts, to develop the volatile oil is practically absent from white mustard. A glucoside (Sinalbin) exists in white mustard, which, when acted upon by water in presence of myrosin, yields an oil (Sinalbin mustard oil) which has the pungent, burning taste, and vesicating properties of the volatile oil of black mustard; but this oil is only slightly volatilized with steam, and its presence does not materially interfere with the estimation of volatile mustard oil. (Allylisothiocyanate).

From the work of Piesse and Stansell already quoted, F. Sutton (Allen's Commercial Organic Analysis; vol. III, part 3, p. 116); Schlicht (Zeits. Anal. Chem. XXX. 661), and others, I am of opinion that the determination of volatile oil of mustard is practicable as a means of assaying commercial mustard; and I hope to investigate this matter more fully at an early date.

The following definition of mustard has been adopted by the United States Department of Agriculture (Circular No. 13, Dec. 20, 1904, p. 11):—

"Ground mustard is a powder made from mustard seed, with or without the removal of the hulls and a portion of the fixed oil, and contains not more than two and five-tenths (2·5) per cent of starch and not more than eight (8) per cent of total ash."

This definition leaves much to be desired, as it makes no reference to the component (volatile oil) upon which the real value of ground mustard depends, whether considered as a condiment, or as a vesicant.

It will be seen on looking through the tables in this report, that very few samples of mustard found on the Canadian market are free from starch and turmeric. Nor is it to be understood that the addition of starch and turmeric is made for purposes of fraud. Certain brands of this condiment, which have been on the world's markets for generations, and have received recognition and honours at International Exhibitions, are avowedly mixtures of mustard farina with other materials. The public have approved of these compounds; and other manufacturers have, on this account, been led to imitate them. It may be, as alleged by some makers, that the presence of starchy matters is necessary, to give better keeping quality to the article, which without starch, tends to become lumpy and sticky; that turmeric is desirable to give a pleasing colour to mustard, especially when mixed with water for the table; that the removal of a large percentage of the fixed oil is necessary to permit of satisfactory grinding and sifting. On the other hand, it is claimed that the seeds of white mustard although not possessed of the pungent properties essential to mustard as a condiment, contain the finer and distinctive flavours of mustard, and are as necessary to the production of a desirable condiment as the black mustard. And further that even the same variety of seeds exhibits so great differences in crops of different years that it is impossible to make satisfactory blends except under the guidance of an expert, who is guided rather by the cultivated senses of taste, and smell, than by varietal differences in the seeds themselves. However this may be, it is certain that mustard should be sold for what it is; and that the presence of added matters should be announced on the label.

The question of the amount of added matters which may be permitted is serious, from the point of view of the use of mustard as a domestic remedy, in blisters, poultices, emetics, &c. The mustard of the pharmacopœias permits of no admixture. Mustard as a condiment is another matter, and the public should learn to recognize the distinction between the two. Condimental mustard may be regarded as a substitute, in emergency, for the pharmaceutical mustard, but by no means to be confused with this last.

But even as a condiment, there is a degree of dilution which amounts to fraud. The fixing of limits defining mustard for condimental purposes is under consideration. The problem is not a simple one, and I am not yet in a position to submit a formal solution. I would respectfully recommend the publication of this report as Bulletin No. 176.

I have the honour to be, sir,
Your obedient servant,
A. McGILL,
Chief Analyst.

BULLETIN No. 176—MUSTARD.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Total Ash.	Reducing matters by acid conversion calculated as starch.	Microscopical Examination.	Remarks, and Opinion of the Chief Analyst.
1909.			DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.								
Jan. 12	Mustard....	33816	Jas. Hogan, Halifax, N.S.	¼ lb ..	06	Coleman, London, Eng.	.....	3·50	25·65	Mustard & wheat starch	
" 12	" ...	33817	Jas. Scott & Co., Halifax, N.S.	¼ " ..	15	J. J. Coleman, London, Eng.	.....	4·16	16·65	" " ..	
" 14	" ...	33818	J. L. Archibald & Son, Halifax, N.S.	¼ " ..	10	" " ..	"Durham Brand"	3·34	20·13	Mustard, wheat starch & turmeric.	
" 14	" ...	33819	W. Taylor, Halifax, N.S.	¼ " ..	10	Dunn, London, Canada	.....	5·10	6·84	" " ..	
" 15	" ...	33820	E. B. Tracey, Halifax, N.N.	¼ " ..	08	C. H. Cochrane & Co., Ottawa, Ont.	"Imperial Brand"	3·96	33·07	" " ..	
			DISTRICT OF PRINCE EDWARD ISLAND—THEO. MOORE, INSPECTOR.								
Jan. 8	Mustard....	31433	Connolly Bros., Charlottetown.	¼ lb ..	09	Auld Bros., Charlottetown.	.....	1·96	5·31	Mustard, wheat starch & turmeric.	
" 11	" ...	31434	Bruce & McKay, Summerside.	¼ " ..	10	Pure Gold Mfg. Co., Toronto.	.....	2·84	55·12	" " ..	
" 11	" ...	31435	D. McKenzie, Kensington.	¼ " ..	10	Raymart & Co., London, Eng.	Mfg. from select seed, warranted superior quality.	1·40	46·12	" " ..	
" 12	" ...	31436	R. Tuplin & Co., Kensington.	¼ " ..	08	W. H. Schwartz & Son, Halifax.	Taken from package labelled "Imperial Mustard Compound.	2·10	....	" " ..	Sold as admixture.
" 12	" ...	31437	Geo. W. McLeod, Hunter River.	¼ " ..	10	N. Rattenbury Co. Ltd., Charlottetown.	....	3·04	....	" " ..	"

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.

Jan.	8	Mustard....	29867	Harry G. McBeath, St. John, N.B.	½ lb..	10	J. J. Colman, London, Eng.	"Colmans Fine".	3·74	17·10	Mustard& wheat starch		
"	16	" ...	29868	Halt Morrison & Co., Fredericton, N.B.	½ " ..	12	" " .	"Colmans Durham" mustard admixture.	2 80	.. .. ..	Mustard, wheat starch & turmeric.	Sold as admixture.	
"	19	" ...	29869	C. L. Olmstead, Perth, Victoria Co., N.B	½ " ..	10	" " .	" " .	3 38	.... ..	" " ..	"	
"	20	"	29870	Benjamin Beveridge, Andover, Victoria, N.B.	1 tin..	15	Dearborn & Co., St. John, N B.	"Natural Brand" compound.	5 99	.... ..	" " ..	Sold as compound.	
"	27	" ...	29871	James Mailer, Newcastle, N.B.	½ lb..	10	J. J. Colman, 108 Cannon St., London, Eng.	....	3·64	..	Mustard & wheat starch	Sold as admixture.	

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

Jan.	14	Mustard...	36838	Arthur Rinfret, 114 St. Joseph St., Quebec.	½ lb..	15	U. Francoeur, Quebec	"French Mustard"	6·46	..	Mustard & turmeric..		
"	14	" ...	36839	" "	½ " ..	25	Unknown..	'Colmans Mustard'	3 54	2 80	Mustard & a little wheat starch.		
"	14	" ...	36840	Arthur Drolet, 714 St. Valier St., Quebec.	½ " ..	25	Turcotte & Freres, Quebec.	" " ..	3 90	7 70	Mustard & wheat starch		
"	14	" ...	36841	" "	½ "	15	U. Francoeur, Quebec	"French Mustard"	5 34	.... ..	Mustard & a trace of turmeric.		
"	15	" ...	36842	Hamel & Bedard, 728 St. Valier St., Quebec.	½ " .	15	Turcotte & Frères, Quebec.	'Colmans Mustard'	3 66	28 35	Mustard, wheat starch & turmeric.		

DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.

Jan.	11	Mustard....	923	Mde. David Grenier, Sorel.	½ lb..	15	C. Labelle & Co., Sorel	....	2 64	31 05	Mustard, wheat starch & turmeric.		
"	11	" ..	924	Marchissault & fils., St. Ours.	3 tins.	45	Hudson Herbert & Co	....	3 74	.... .	Mustard, wheat starch & a trace of turmeric.	Sold as admixture.	
"	11	" ..	925	Arthur Proulx, St. Ours Loch.	¼ " .	08	E. D. Marceau & Cie., Montreal.	Stamped on pail, Old Crow Mustard. Keens.	1 84	31 65	Mustard, wheat starch & turmeric.		
"	12	" ...	926	D. Parent, Yamaska..	½ " ..	10	Not known.....	....	2 00	34 65	" " ..		
"	12	" ...	927	Adelard Robert, Farnham.	½ " .	10	Canada Direct Tea Trading Co., Montreal.	On ½ lb. packet labelled Mustard	3 60	53 55	" " ..		

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Total Ash.	Results of Analysis. Reducing matters by acid conversion calculated as starch.	Results of Analysis. Microscopical Examination.	Remarks, and Opinion of the Chief Analyst.
DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.											
1909. Jan. 4	Mustard....	32661	H. G. Smith, Montreal	¼ lb..	10	Rose & Laflamme, Montreal.	.....	3·50	20·70	Mustard & wheat starch	
" 4	" ...	32662	Kyle & Stevenson, Montreal.	¼ " ..	10	Not known..... ...	.....	2·40	52·38	Mustard, wheat starch & turmeric.	
" 7	" ...	32663	Richer & Page, Valleyfield, P.Q.	¼ " ..	10	.....	The admixture is guaranteed free from any injurious ingredients.	1·40	.....	" " ..	Sold as admixture.
" 11	" ...	32664	Geo. Dixon, Huntingdon, P.Q.	¼ " ..	05	Not known.....	Durham Mustard..	2 26	21·05	" " ..	
" 12	" ...	32665	Pierre Poirier, St. Gabriel de Brandon, P.Q.	¼ " ..	08	"	.....	2·84	38·92	" " ..	
DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.											
Jan. 6	Mustard....	22786	Estate Late Chas. Logue, River Desert, P.Q.	¼ lb..	07	Not known.....	Sold as mustard. .	2·00	45·72	Mustard, wheat starch & turmeric.	
" 8	" ...	22787	The Sanders Soule & Casselman Co., Chesterville, O.	¼ " ..	08	Hudon Herbert & Cie., Montreal.	" ..	1·45	48·15	" " ..	
" 11	" ...	22788	Brown Bros., Richmond	¼ tin..	14	Not known.....	Sample labelled Keens Mustard. Also labelled admixture.	3 80	.....	Mustard & wheat starch	Sold as admixture.
" 13	" ...	22789	A. Parkinson, Kemptville.	¼ lb..	10	Dalley & Co., Hamilton	Sold as mustard...	2·54	55·35	Mustard, wheat starch & turmeric.	
" 19	" ...	22790	Kavanagh Bros., Ottawa.	¼ " ..	10	Not known.....	" ..	2·94	24·70	" " ..	

DISTRICT OF KINGSTON—JAS. HOGAN, INSPECTOR.

Jan.	11	Mustard....	39416	R. Elvins, Belleville..	½ lb..	25	Keens, London.....	.....	...	3·60	10 45	Mustard & wheat starch	
"	11	" . .	39417	H. E. Fairfield, Belleville.	½ " ..	15	J. M. Lowes, Toronto.	.. ..	.	2·14	34·42	Mustard, wheat starch & turmeric.	
"	11	" ...	39418	J. Curtis, Port Hope..	½ " .	30	Keens, London.....	.....		4·00	3·87	Mustard & wheat starch	
"	11	" ...	39419	F. H. Brown, Port Hope	½ " ..	30	"	.....	...	4·60	6·26	" " .	
"	12	" ..	39420	A. J. Roulty, Peterboro	½ " ..	20	Dunn, Hamilton.....	.....	....	2·70	54 58	Mustard, wheat starch & turmeric.	

DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.

Jan.	5	Mustard ...	36166	M. Sweeney, Sherbourne St., Toronto.	¼ lb...	5	Dalton Bros., Toronto.	Dalton's mustard..		1·84	29·70	Mustard, wheat starch and turmeric.	
"	5	"	36167	P. Kelly, Sackville St., Toronto.	¼ " ..	7	" "	" ..		2 18	48·37	" " ..	
"	12	"	36168	J. A. Williamson, Hamilton.	¼ " ..	10	Not known.....	Tin labelled pure mustard.		2 82	51·97	" " ..	
"	12	"	36169	James Main, Hamilton.	¼ " ..	7	The F. F. Dalley Co. Ltd., Hamilton.	Labelled Dalley's pure mustard guaranteed by the F. F. Dalley Co. Ltd.		6 00	None	Mustard and turmeric.	
"	15	"	36170	R. H. Watson, St. Catharine.	¼ "	7	Gardiner, Dunn & Co., Hamilton.	Labelled Durham Mustrd Compound.		3·00	....	Mustard, wheat starch and turmeric.	Sold as compound.
"	26	" ...	36176	C. Collard, Toronto. ..	¼ " .	5	Not known....	.....	...	1·56	59 17	" " .	

DISTRICT OF LONDON—T. KIDD, INSPECTOR.

Jan.	6	Mustard...	30553	Chas. Nairn, Goderich.	½ lb.	35	J. Farrow Co. Peterboro, England.			4 14	.....	Mustard and wheat starch.	Sold as admixture.
"	6	"	30555	J. J. McEwin, Goderich.	¾ " ..	30	Not known.. .	.....		3 81	.....	" " ..	Sold as compound.
"	8	"	30560	Richard Smith, Seaforth.	¾ " ..	30	Gorman, Eckert & Co., London, Ont.	.....		1 51	.....	Mustard, wheat starch turmeric.	"
"	11	"	30565	B. A. McEwen, Clinton.	½ " ..	10	" "	.....		1 40	56·70	" " ..	
"	12	"	30569	William Stoneman, Mitchell.	½ " ..	30	Canada Grocery & Spice Co., London, Ont.	.....		2 82	.....	" " ..	Sold as admixture.

Date of Collection	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Total Ash.	Reducing matters by acid conversion calculated as starch.	Microscopical Examination.	Remarks and Opinion of the Chief Analyst.
1909.			DISTRICT OF WINDSOR—J. TALBOT, INSPECTOR.								
Jan. 7	Mustard....	34729	Jas. Fraser, Sarnia.. ..	¼ lb..	15	Keens, London, Ont ..	....	3·64	7·26	Mustard and wheat starch.	
" 7	"	34732	W. C. Palmer, Sarnia.	¼ " ..	10	Not known.....	....	3·14	8·84	Mustard, wheat starch and turmeric.	
" 7	"	34734	R. Wanless & Co., Sarnia.	¼ " ..	08	Todhunter & Mitchell, Toronto.	Not sold as pure mustard,	3·40	.....	" " ..	Sold as compound.
" 8	"	34740	C. R. Polly, Petrolia..	¼ " ..	08	Canada Spice & Grocery Co., London, Ont.	.. ..	2·82	54·45	" " ..	
" 8	"	34741	Fred. Scarsbrook, Petrolia.	¼ " ..	08	" " ..	"Crest" Brand.	2·90	37·68	" " ..	
			DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.								
Jan. 14	Mustard...	35785	J. C. Callander & Co., Hartney.	¼ lb..	15	Keens Mustard, London, Eng.	.....	4·12	13·95	Mustard and wheat starch.	
" 14	"	35786	D. Sutherland, Hartney.	½ " ..	25	The Gold Standard Mfg. Co., Winnipeg, M.	....	4·25	None.	Mustard.....	
" 19	"	35787	Findlay Speer Co., Shoal Lake.	¼ " ..	10	Campbell Bros, Wilson, Winnipeg.	.....	3·50	37·80	Mustard, wheat starch and turmeric.	
" 20	"	35788	Geo. Manson & Sons, Strathclair.	¼ " ..	15	Keens Mustard, London, Eng.	....	3·84	10·44	Mustard and wheat starch.	
" 21	"	35789	C. McLearn, Winnipeg.	¼ " ..	10	Genuine London Mustard.	.....	3·66	45·00	Mustard, maize starch and turmeric.	

DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.

Jan.	18	Mustard....	35366	Copas & Emerson, Calgary.	¼ lb..	10	L. T. Mewburn & Co. Ltd., Calgary.	....	2·32	40·72	Mustard, wheat starch and turmeric.	
"	18	"	35367	C. J. Winn, Calgary..	¼ " ..	10	Campbell, Wilson & Horne, Calgary.	.. ..	2·34	52·42	" " ..	
"	18	"	35368	Hudsons Bay Co., Calgary.	¼ " ..	15	Keen, London, Eng.	....	3·74	18·83	Mustard and wheat starch.	
"	18	" ...	35369	Calgary Milling Co., Calgary.	¼ " ..	10	Todhunter, Mitchell & Co., Toronto.	. . ..	3·10	56·92	Mustard, wheat starch and turmeric.	
"	18	" ...	35370	J. A. Nolan, Calgary..	¼ " ..	15	Canada Spice & Grocery Co., London, Ont.	....	2·60	53·95	" " ..	

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

Jan.	16	Mustard....	37551	A. Frederickson, Mountain View, Vancouver.	¼ lb..	10	Kelly Douglas & Co., Vancouver.	. .. .	2·78	40·5	Mustard, wheat starch and turmeric.	
"	16	"	37552	W. Clark, Vancouver..	1 Tin.	15	" " ..	.....	4·26	.....	Mustard and wheat starch,	Sold as mixture.
"	15	" ...	37553	Direct Supply Co., Vancouver.	½ lb..	10	Climax Mfg. Co., Vancouver.	....	3·86	42·75	Mustard, wheat starch and turmeric.	
"	15	"	37554	H. C. McQuarrie, Vancouver.	1 Tin.	15	Coleman.....	....	3·90	18·45	Mustard and wheat starch.	Sold as admixture.
"	15	"	37555	J. McArthur, Vancouver.	1 " ..	15	J. J. Coleman.	.. . .	4·20	3·97	Mustard and a little wheat starch.	Sold as mixture.

DISTRICT OF VICTORIA—D. O'SULLIVAN, INSPECTOR.

Jan.	20	Mustard....	39274	Windsor Grocery Co. Ltd., Victoria.	¼ Tin.	20	Fallow & Co., Peterborough, Eng.	Labelled Fallow's "A. 1" Mustard, also labelled admixture.	1·10	19·90	Mustard and wheat starch.	Sold as admixture.
"	20	" ...	39275	Copas & Young, Victoria.	¼ " ..	15	J. J. Coleman, London, Eng.	Coleman's must'rd, an admixture.	1·06	15·97	Mustard, wheat starch and turmeric.	"
"	20	"	39276	Wm. B. Hall, Victoria,	3 Pkgs	30	A. Shilling & Co., San Francisco, Cal.	"Shilling's" best mustard.	5·96	None	Mustard	
"	21	"	39277	W. A. Jameson Coffee Co., Victoria.	½ lb..	10	F. F. Dalley, Hamilton, Ont.	Taken from a brl. in factory.	6·00	None.....	Mustard and turmeric.	
"	25	" ...	39278	Wm. B. Hall, Victoria.	½ " ..	30	Pioneer Coffee & Spice Mills, Victoria, B.C.	"Bull Dog" Brand, Pure English mustard—not sold as high grade mustard.	3·90	22·95	Mustard, wheat starch and turmeric.	

APPENDIX AA.

BULLETIN No. 177—TABLE SYRUPS.

OTTAWA, March 18, 1909.

WM. HIMSWORTH, Esq.,
Acting Deputy Minister of Inland Revenue.

SIR,—I have the honour to report upon 75 samples of syrup, purchased throughout Canada in January of this year. The collection was intended to be exclusive of maple syrup, or of imitations of maple syrup (which have received consideration in Bulletins 141 and 155), but a few samples of this class of goods have been inadvertently purchased by our inspectors.

Table II contains classified statements of the results of analysis, which will be found, together with other information, in Table I.

Thirty-nine (39) of the 75 samples herein reported, consist essentially of Corn-Starch Glucose; but varying amounts, usually from 5 to 10 per cent of cane sugar are present in these. Twenty-three (23) samples are essentially cane sugar syrups although several of them contain notable amounts of glucose. The remaining thirteen (13) samples are mixtures, containing very considerable proportions of cane sugar usually about 30 per cent.

Owing to the non-existence of legal standards for syrup, it is impossible to pronounce definitely upon individual samples.

This report will serve the purpose of showing what table-syrup (omitting maple syrup) is, as now sold in Canada.

The following explanations, bearing upon the question of defining syrup, are of interest here.

When the sugar-containing sap or juice of a plant (maple tree, sugar cane, &c.,) is evaporated to a consistence such that not more than about 30 per cent of water remains, the result is a syrup. This assumes that no sugar has been removed in the process. The necessary heating of the sap or juice has the effect of causing some change in the nature of the contained sugar. Cane sugar is more or less changed to *invert sugar* (a mixture of dextrose and levulose).

If the sap is, at some stage of the process of evaporation, allowed to cool, so that the sugar crystallizes, and the sugar crystals are removed, the residual liquid will still be sweet, in consequence of having sugar in solution, but the dissolved sugar will more largely consist of invert sugar. Such a residual solution, from which sugar crystals have been removed, is properly called molasses.

A syrup may be made by the direct solution of sugar in water, to proper consistency. Such a syrup (sugar syrup) is defined by the pharmacopœias. The British pharmacopœia prescribes the solution of 10 parts of sugar by weight, to make 15 parts of the syrup. This has a density of 1,330. It is evident that such a syrup may contain little or no invert sugar; and must be too costly to compete with ordinary syrup in commerce.

When starch is heated under pressure, in contact with an acid and water, a change occurs by which the starch is largely converted into dextrose (one of the components of invert sugar). More or less of the starch is, however, converted into dextrin (British gum) quite a different thing from sugar. The resultant of this process, properly freed from any excess of acid, and otherwise purified and concentrated is by courtesy, known

as a syrup (glucose syrup), but is not a syrup as above defined. Since, however, it has a sweetish taste, though by no means so sweet as true syrup, it is put on the market as a syrup. Increased sweetness is given to it by addition of more or less true syrup, and, perhaps, in some cases, by addition of saccharin.

Mixed syrups, consisting of glucose syrup and true syrup, may be perfectly wholesome foods ; as, indeed may be true of glucose syrup *per se*. But, in order to be perfectly honest articles of commerce, the fact of their composition should be made known to the purchaser.

The differences in taste and flavour between a true syrup and a glucose syrup, or a syrup made by mixing glucose with a true syrup, are quite well marked ; and it may be urged that, so long as the purchaser finds no fault on the ground of sweetness, flavour, and other qualities that appeal to the sense of taste, there is really no ground of complaint, even should he be supplied indiscriminately with one or other of these articles. The nutritive properties (energy producing power) possessed by them may, so far as we know, be considered identical.

I believe, however, that there are many consumers who distinguish between cane syrup and glucose syrup ; and in the interest of such consumers, as well as for the purpose of making a clear statement of fact, I am of opinion, that table syrups should be sold under distinctive names, as for example, maple syrup, cane syrup, glucose syrup, mixed syrup, &c.

I beg to recommend the publication of this report as Bulletin No. 177.

I have the honour to be, sir,

Your obedient servant.

A. McGILL,

Chief Analyst.

TABLE II.

EDWARDSBURG CO., CARDINAL, ONT.

Number.	Polarization.		Cane Sugar.	Total Solids.	Water.
	Direct.	Invert.			
33822	+154·0	+146·9	5 30	78 32	21·68
33823	+158·0	+151·8	5·40	79 12	20·88
29873	+141 0	+132·0	6·71	80·56	19·44
29874	+168 0	+160·0	6·97	80 12	19 88
36821	+151 0	+147·4	4·92	77 80	22·20
929	+168 0	+160 6	6·62	78 24	21 76
931	+141 0	+135·3	4·05	79 61	20·36
32669	+150 0	+140·6	7·01	78 29	21·31
22791	+145 0	+145·0	.....	79 20	20 80
22794	+141 0	+131 0	9·70	81 48	19 52
39421	+161·0	+152·9	6·04	79·61	20·36
39423	+134 0	+125·4	6·44	79·64	20·36
39425	+161 0	+150·7	7 68	79·16	20·84
36185	+172·0	+159 8	8·36	80·12	19·18
34733	+156·0	+146 9	6·78	77·37	22·62
35792	+169·0	+156 2	9 55	78·32	21·68
35793	+128·0	+116·6	8·50	81·96	18 04
35794	+143 0	+138·6	4 03	79·12	20·88
35795	+140·0	+136·4	2·69	79 12	20·88
*35371	+134 0	+125 4	6·41	79·20	20·80
37556	+148 0	+144·7	0 22	77·37	22 63
39281	+150·8	+147·5	2 47	77·37	22·63
Means	+150·9	+143·3	5·72	79 15	20·85

ST. LAWRENCE STARCH CO.

36822	+152 0	+141·9	7·55	76·88	23·12
32670	+156·0	+140 0	10·44	78·72	21 28
22792	+159·0	+145·0	10·44	77·80	22·20
22795	+154·0	+140·0	10·44	77 80	22·20
39422	+146 0	+134·2	8 80	76·88	23.12
36183	+156·0	+122 1	17·90	78·72	21·28
34742	+163·0	+151·8	8 35	80 12	19·88
34748	+159 0	+154·0	4 73	78·72	21·28
35372	+142 0	+130·0	8·95	78·72	21·28
35373	+150·0	+139·7	15·15	78·28	21·72
37557	+147·0	+133 0	10·04	77 32	22·68
Means	+153·1	+139·2	10·25	78·18	21·82

A. LYLE & SON, LONDON, ENG.

33821	+27·0	−11·0	29·83	81·04	18·96
33824	+22 0	−15·5	27·99	80·12	19 88
31442	+21·0	−17·6	28 70	78·24	21·76
932	+24·0	−17·6	31·04	78·28	21·72
32677	+22·0	−17·6	29·55	79·64	20·36
35791	+23·6	−22 0	34·03	79·64	20 36
35374	+31·0	−14·3	33·80	81·04	18·96
35375	+23·0	−17·6	30·30	80·86	19·14
37559	+20·1	−19 8	29·77	83 84	16·16
39283	+23·6	−22·0	34·03	81·96	18 04
Means	+23·7	−17·5	31 01	80·47	19·53

IMPERIAL SYRUP CO., MONTREAL.

Number.	Polarization.		Cane Sugar.	Total Solids.	Water.
	Direct.	Invert.			
29872	+ 63·0	+ 6·6	42·09	79·20	20·80
29875	+ 72·0	+ 4·0	50·74	80·12	19·18
29876	+ 66·0	+14·3	38·58	77·80	22·20
930	+ 69·0	+11·0	43·27	75·96	24·04
933	+ 64·0	+ 6·6	42·83	72·72	27·28
32666	+ 64·0	− 4·4	52·54	77·32	22·68
39424	+ 66·0	+ 5·5	47·15	77·37	22·63
30576	+ 66·4	+12·1	40·52	75·48	24·52
3758*	+102·5	+46·8	41·60	80·60	19·40
39280(?)	+ 58·8	+14·3	34·20	75·48	24·52
Means	+ 69·1	+12·5	43·35	77·20	22·72

WESTBURN REFINING CO., GREENOCK.

33825	+25·0	−15·5	30·22	80·12	19·88
39279	+24·0	−21·6	34·03	82·88	17·12
Means	+24·5	−18·5	32·12	81·80	18·50

DIAMOND BRAND (MAPLE CANE).

(Chaput Fils Co.)

31438	+10·0	−19·8	44·81	66·36	33·64
31440	+54·0	−19·0	54·47	70·44	29·56
Means	+47·0	−19·4	49·64	68·40	31·60

* Ramsay Bros. Co., Successors to the Imperial Syrup Co.

SESSIONAL PAPER No. 14

INDIVIDUAL SAMPLES.

No.	Name.	Polarization.		Cane Sugar.	Total Solids.	Water.	Remarks.
		Direct.	Invert.				
32668	Golden Drips; Sugars and Canners Co.	+102·0	− 52·8	56·71	76·88	23·12	Essentially cane syrup.
37560	Vancouver Syrup and Candy Co.	+ 62·0	15·4	57·76	68·68	31·32	"
36818	W. Turcotte & Cie, Quebec.	+ 72·0	+ 1·1	52·91	73·64	23·36	"
39282	Tea Golden Drips; Pacific Coast Syrup Co.	+ 91·6	+ 20·9	52·76	76·87	23·13	"
36820	Bedard & Frere	+ 76·8	+ 8·8	50·74	67·72	32·28	"
34753	Lind, Kerrigan & Co..	+ 46·0	16 0	46 18	81·48	19 52	"
36819	W. Turcotte & Cie	+ 44·0	17 0	45 52	74·60	25·40	"
22793	Molasses; Bate & Co.	+ 49 0	− 11·0	44 78	77·37	22 63	"
36183	Molasses; Star Brand, Warren Bros.	+ 54·0	4·4	43·58	71·84	28·16	"
36182	Syrup; Dom. Molasses Co., Halifax.	+ 41·0	13·3	40·52	72 72	27 28	"
31439	Imperial Syrup Co., Maple Cane.	+ 62 0	18·7	40·22	64 12	35 88	"
31441	Crown Brand; Carvell Bros.	+154·0	+123·2	23·06	78 24	21·76	Mixture.
36184	Tartar Brand; Balfour, Smye & Co.	+161 0	+149 1	8 88	79·20	20 80	Essentially glucose.
30581	John Garvay, London.	+172·0	+160·6	8 50	78 72	21·28	"
30559	?	+155·0	+146·5	6 35	77 28	22 72	"
30572	Warren Bros. Co.	+157 0	+149·6	6·28	75·96	24·04	"
34730	T. Kennedy & Co	+166·6	+160·6	4 48	75·96	24·04	"
30563	?	+166·0	+162·0	2·98	77·80	22·20	"

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Direct Polarization.	Invert Polarization at 20° c.	Cane Sugar by Clerget.	Total Solids.	Water.
DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.												
1909.								°	°	p. c.	p. c.	p. c.
Jan. 15	Table Syrup	33821	E. W. Crease & Son, Halifax, N.S.	2 lb.	15	A. Lyle & Son, London, Eng.		+ 27	− 11·0	29·83	81·04	18·96
" 15	" ..	33822	Knock & Nicolle, Halifax, N.S.	5 " ..	30	Edwardsburg Starch Co., Cardinal, Ont.		+ 151	+ 146·9	5·30	78·32	21·68
" 19	" ..	33823	Shaud Bros., Windsor	2 " ..	13	" "		+ 158	+ 151·8	5·40	79·12	20·88
" 19	" ..	33824	John Rily, Windsor	2 " ..	18	A. Lyle & Son, London, Eng.		+ 22	− 15·5	27·99	80·12	19·88
" 27	" ..	33825	S. Thomson, Dartmouth	3 " ..	30	Westburn Refining Co., Greenock, Scotland.		+ 25	− 15·5	30·22	80·12	19·88
DISTRICT OF PRINCE EDWARD ISLAND—THEO. MOORE, INSPECTOR.												
Jan. 11	Table Syrup	31438	W. J. Lidstone, Summerside	1 can	20	Chaput fils & Co., Montreal	Labelled Maple Cane Table Syrup. An admixture of cane and maple syrup.	+ 40	− 19·8	44·81	66·36	33·64
" 11	" ..	31439	R. T. Holman, Ltd., Summerside.	1 " ..	35	Imperial Syrup Co., Montreal	A product of maple and cane sugar. Does not contain glucose, preservatives or acids of any kind	+ 62	− 18·7	40·22	64·12	35·88
" 14	" ..	31440	A. Gates & Co., Charlottetown	1 " ..	25	Chaput fils & Co., Montreal	Diamond Brand maple cane mixture, free from chemical acids or glucose.	+ 54	− 19	54·47	70·44	29·56
" 14	" ..	31441	M. Duffy, Charlottetown	1 " ..	12	Carvell Bros., Charlottetown.	Crown Brand, guaranteed pure and wholesome.	+ 154	+ 123·2	23·06	78·24	21·76
" 14	" ..	31442	Sanderson & Co., Charlottetown.	1 " ..	20	Abram Lyle & Sons, London.	Lyle's Golden Syrup, guaranteed pure.	+ 21	− 17·6	28·80	78·24	21·76

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.

Jan.	12	Table Syrup	29872	2 Barkers, Ltd., St. John, N.B.	1 tin	15	Imperial Syrup Co., Montreal	Goldenette Pure Cane Maple Syrup.	+	63	+	6·6	42·09	79·20	20·80
"	12	" ..	29873	Chas. H. Francis & Co., St. John, N.B.	1 " ..	12	Edwardsburg Starch Co., Cardinal, Ont.	Edwardsburg Crown Brand. Pure table syrup.	+	141	+	132	6·71	80·56	19·44
"	16	" ..	29874	H. C. Jewett, Fredericton, N.B.	1 " ..	12	" " ..	" " ..	+	168	+	160	6·97	80·12	19·88
"	18	" ..	29875	Townsend & Hayden, Woodstock, N.S.	1 " ..	20	Imperial Syrup Co., Montreal	Goldenette. Pure Cane Table Syrup.	+	72	+	4	50·74	80·12	19·18
"	26	" ..	29876	The 2 Barkers, Ltd., Moncton, N.B.	1 " ..	12	" " ..	" " ..	+	66	+	14·3	38·58	77·80	22·20

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

Jan.	13	Table Syrup	36818	Stanislas Gagnon, Quebec	1½ pt.	12	N. Turcotte & Cie, Quebec		+	72	+	1·1	52·91	73·64	23·36
"	13	" ..	36819	" "	1½ "	10	" "		+	44	−	17	45·52	74·60	25·40
"	13	" ..	36820	T. Greffard, Quebec	1½ "	15	Bedard & frère, Quebec		+	76·8	+	8·8	50·74	67·72	32·28
"	13	" ..	36821	"	1 box	12	Turcotte & frère, Quebec	Edwardsburg Table Syrup.	+	154	+	147·4	4·92	77·80	22·20
"	13	" ..	36822	"	1 "	12	T. B. Letellier, Quebec	Bee-hive Cane Syrup. St. Lawrence Starch Co.	+	152	+	141·9	7·55	76·88	23·12

DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.

Jan.	11	Table Syrup	929	A. C. Trempe, Sorel	2 lb. can.	15	Edwardsburg Starch Co., Cardinal, Ont.	Crown Brand, Edwardsburg Pure Table Syrup.	+	168	+	160·6	6·62	78·24	21·76
"	11	" ..	930	J. St. Laurent, St. Ours	2 " ..	15	Imperial Syrup Co., Montreal	Goldenette Pure Cane Table Syrup.	+	63	+	11	43·27	75·96	24·04
"	12	" ..	931	B. H. Beland, Yamaska	5 l..	25	Edwardsburg Starch Co., Cardinal, Ont.		+	141	+	135·3	4·05	79·64	20·36
"	14	" ..	932	Woodman & McKee, Coaticook	2 " ..	20	F. K. Major & Co., Montreal	Lyle's Golden Syrup	+	24	−	17·6	31·04	78·28	21·72
"	21	" ..	933	Raymond & frères, St. Hyacinthe.	3 cans	36	Imperial Syrup Co., Montreal	"Goldenette"	+	64	+	6·6	42·83	72·72	27·28

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Direct Polarization.	Invert Polarization at 20° C.	Cane Sugar by Clerget.	Total Solid.	Water.
DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.												
1909.								°	°	p.c	p.c.	p.c.
Jan. 19	Table Syrup	32666	Imperial Syrup Co., Montreal.	3 lb. tin.	25	Vendors.....	Goldenette Pure Cane Table Syrup.	+ 64	− 4·4	52·54	77·32	22·68
" 19	" ..	32667	English Provision Co., Montreal.	1 tin..	18	Abram Lyle & Sons, Ltd., London, Eng.	Warranted pure and free from starch glucose.	+ 22	− 17·06	29·55	79·64	20 36
" 19	" ..	32668	Sugars & Canners, Ltd., Montreal.	3 " .	35	Vendors.....	"Golden Drips" Brand...	+ 102	+ 52·8	56·71	76·88	23·12
" 22	" ..	32669	T. Dallaire, Lachute Mills....	2 " ..	24	Edwardsburg Starch Co.....	"Crown Brand".....	+ 150	+ 140·6	7·01	78·29	21·31
" 26	" ..	32670	Laporte Martin Co., Ltd., Montreal.	3 " ..	30	St. Lawrence Starch Co.....	Guaranteed 90 p. c. Corn Syrup and 10 p. c. Cane Syrup. Labelled Corn Syrup.	+ 156	+ 40	10·44	78·72	21·28
DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.												
Jan. 6	Table Syrup	22791	Cavanaugh Bros., Maniwaki, P.Q.	1 qt..	30	H. N. Bate & Sons, Ottawa .	"Crown" Brand.....	+ 145	+ 145	.....	79·20	20·80
" 11	" ..	22792	Birtch Bros., Richmond, Ont.	1 " .	25	F. J. Castle Co., Ottawa	"Bee-hive" Brand Corn Syrup. Guaranteed 90 p.c. corn syrup and 10 p.c. cane syrup.	+ 159	+ 145	10·44	77·80	22·20
" 19	" ..	22793	B. Palef, Ottawa	1½ pt..	10	Bate & Co., Ottawa.....	Molasses.....	+ 49	− 11	44·78	77·37	22·63
" 20	" ..	22794	Joseph Martel, Hull	1 qt..	25	Edwardsburg Starch Co., Cardinal, Ont.	"Crown" Brand.....	+ 144	+ 131	9·70	81 48	19·52
" 21	" ..	22795	Geo. E. Pelton, Billings' Bridge	1 " ..	30	F. J. Castle Co., Ottawa	"Bee-hive" Brand, guaranteed 90 p.c. corn syrup and 10 p.c. cane syrup.	+ 154	+ 140	10·44	77·80	22·20

DISTRICT OF KINGSTON—J. HOGAN, INSPECTOR.

Jan.	6	Table Syrup	39421	A. Glover, Kingston	2 lbs.	12	Edwardsburg Table Syrup Co.		+ 151	+ 152·9	6·04	79·64	20·36
"	7	"	39422	H. M. Storer, Kingston	2 "	12	St. Lawrence Starch Co.		+ 146	+ 134·2	8·80	76·88	23·12
"	7	"	39423	C. Saunders, Kingston	2 "	12	Edwardsburg Table Syrup Co.		+ 134	+ 125·4	6·41	79·64	20·36
"	7	"	39424	Anderson Bros., Kingston	2 "	12	Imperial Syrup Co., Montreal		+ 66	+ 5·5	47·15	77·37	22·63
"	7	"	39425	J. Kelly, Kingston	2 "	15	Edwardsburg Table Syrup Co.		+ 161	+ 150·7	7·68	79·16	20·84

DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.

											p. c.	p. c.	p. c.
1909.													
Jan.	8	Table Syrup.	36182	E. F. Churchill, Toronto	2 tin	20	The Dominion Molasses Co., Halifax, N.S.	Golden Sling. Pure Cane Sugar Syrup.	+ 41	13·3	40·52	72·72	27·28
"	12	"	36183	Peters & Bonsell, Hamilton	1 tin	13	St. Lawrence Starch Co., Ltd.	"Bee-hive" Brand contains 90 p.c. Pure Corn Syrup and 10 p.c. Cane Syrup.	+ 156	+ 122·1	17·90	78·72	21·28
"	13	"	36184	J. C. Groom, Niagara Fall	1 "	15	Balfour Smye & Co., Hamilton.	"Tartan" Brand	+ 161	+ 149·1	8·88	79·20	20·80
"	15	"	36185	W. A. Sherwood & Son, St. Catharines.	1 pt.	15	Edwardsburg Starch Co., Cardinal.	"Crown" Brand	+ 172	+ 159·8	8·36	80·12	19·18
"	20	"	36186	W. J. McCullough, West Toronto.	1 tin.	24	Warren Bros. & Co., Toronto	"Star" Brand. West India Molasses.	+ 54	− 4·4	43·58	71·81	28·16

DISTRICT OF LONDON—T. KIDD, INSPECTOR.

Jan.	7	Table Syrup.	30559	H. J. Novresh, Goderich	1 qt.	15	Not known.		+ 155	+ 146·5	6·35	77·28	22·72
"	8	"	30563	A. G. Ault, Seaforth	1 "	15	"		+ 166	+ 16·2	2·98	77·80	22·20
"	12	"	30572	N. Z. Coppen, Mitchell	3 bots	15	Warren Bros., Toronto		+ 157	+ 149·6	6·28	75·96	24·04
"	13	"	30576	J. M. Adam, St. Marys	1 qt	15	Imperial Syrup Co., Montreal		+66·4	+ 12·1	40·52	75·48	24·52
"	14	"	30581	A. Monteath, Stratford	1 "	15	John Garvey, London, Ont.	Labelled Pure Table Syrup.	+ 172	+ 160·6	8·50	78·72	21·28

BULLETIN No. 177—TABLE SYRUPS—TABLE I.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost.		Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis.				
				Quantity.	Cents.			Direct Polarization.	Invert Polarization at 20° c.	Cane Sugar by Clerget.	Total Solids.	Water.
DISTBICT OF WINDSOR—J. TALBOT, INSPECTOR.												
1909.										p.c.	p.c.	p.c.
Jan. 7	Table Syrup.	34730	R. Kenny, Sarnia	3 bots	10	T. Kenney & Co., Sarnia		+ 166	+ 160·6	4·48	75·96	24·04
" 7	" ..	34733	Peter Clark, Sarnia	3 " ..	15	Edwardsburg Starch Co.	"Crown" Brand	+ 156	+ 146·9	6·78	77·37	22·62
" 8	" ..	34742	R. Hessey, Petrolia	3 " ..	15	Elliott Marr, London	"Bee-hive" Brand	+ 163	+ 151·8	8·35	80·12	19·88
" 11	" ..	34748	S. M. Fleet, Ingersoll	3 " ..	38	St. Lawrence Starch Co.	" "	+ 159	+ 154·0	4·73	78·72	21·28
" 11	" ..	34753	P. J. Sherry, Ingersoll	2½ lb	18	Lind Kerrigan & Co., London		+ 46	− 16·0	46·18	81·48	19·52
DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.												
Jan. 18	Table Syrup	35791	Slasor & McTaggart, Winnipeg	2 lb..	20	A. Lyle & Sons Ltd., London, Eng.	Lyle's Golden Syrup	+23·6	− 22·0	34·03	79·64	20·36
" 18	" ..	35792	McDowell & Grant, Winnipeg.	5 " ..	30	Edwardsburg Starch Co., Cardinal.	"Crown" Brand	+ 169	+ 156·2	9·55	78·32	21·68
" 18	" ..	35793	T. J. Davis, Winnipeg	5 " ..	35	" " ..	"	+ 128	+ 116·6	8·50	81·96	18·04
" 18	" ..	35794	T. Goody, Winnipeg	5 " ..	50	" " ..	"	+ 143	+ 138·6	4·03	79·12	20·88
" 18	" ..	35795	R. D. Cuthbert, Winnipeg	5 " ..	25	" " ..	"	+ 140	+ 136·4	2·69	79·12	20·88

DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR.

Jan.	12	Table Syrup	35371	A. Brand, Calgary	2lb.tin	20	Edwardsburg Starch Co., Cardinal.		+ 134	+ 125·4	6·41	79·20	20·80
"	12	" ..	35372	Golden West Grocery, Calgary	2 " ..	15	St. Lawrence Starch Co. Ltd., Port Credit, Ont.		+ 142	+ 130·0	8·95	78·72	21·28
"	12	" ..	35373	P. W. Garnot, Calgary.	2 " ..	15	" "		+ 150	+ 139·7	15·15	78·28	21·72
"	12	" ..	35374	S. G. Freeze, Calgary.....	2 " ..	25	Abram Lyle & Son Star. Co., London, Eng.		+ 31	14·3	33·80	71·04	18·96
"	12	" ..	35375	Co-operative Store, Calgary...	2 " ..	25	" "		+ 23	17·6	30·39	70·86	19·14

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

Jan.	26	Table Syrup	37556	J. A. Dickie, Vancouver ..	1 tin..	15	Edwardsburg Starch Co., Cardinal.	Guaranteed pure and wholesome.	+ 148	+ 144·7	0·22	77·37	22·63
"	26	" ..	37557	C. Turner, Vancouver.....	1 " ..	15	St. Lawrence Starch Co. .	Guaranteed 90 p. c. Pure Corn Syrup and 10 p. c. Pure Cane Syrup.	+ 147	+ 133·0	10·04	77·32	22·68
"	26	" ..	37558	J. May, Vancouver.....	1 " .	20	Ramsay Bros. & Co., successors to Imperial Syrup Co., Vancouver.	Guaranteed Sugar. Cane Syrup.	+ 102·5	+ 46·8	41·60	80·60	19·40
"	26	" ..	37559	J. R. Gosling, Vancouver.....	1 " ..	20	A. Lyle & Sons Ltd., London Eng.	Guaranteed pure in every respect.	+ 20·1	19·8	29·77	83·84	16·16
"	26	" ..	37560	H. A. Edgette Co., Ltd., Vancouver.	1 " ..	25	Vancouver Syrup & Candy Co.		+ 62	15·4	57·76	68·68	31·32

DISTRICT OF VICTORIA D. O'SULLIVAN, INSPECTOR.

Jan.	23	Table Syrup	39279	Fred Carne, Victoria..	2 lb .	25	Westburn Sugar Refineries, Grenock, Eng.	Westburn Golden Syrup warranted pure.	+ 24	- 21·6	34·03	82·88	17·12
"	23	" .	39280	"	2 " ..	25	Ramsay Bros & Co., Ltd., Vancouver.	Manilla Drips. Guaranteed Sugar Cane Syrup.	+ 58·8	+ 11·3	34·20	75·48	24·52
"	25	" ..	39281	The Saunders Grocery Co., Ltd., Victoria.	1 qt..	25	Edwardsburg Starch Co., Cardinal.	"Crown" Brand	+ 150·8	+ 147·5	2·47	77·37	22·63
"	25	" ..	39282	Dixi H. Ross & Co., Victoria..	1 " ..	35	Pacific Coast Syrup Co., San Francisco, Cal.	Ten Golden Drips. composed of sugar. Sugar Cane and Corn Syrup.	+ 91·6	+ 20·9	52·76	76 87	23·13
"	25	" ..	39283	The West End Grocery Co. Ltd., Victoria.	2 lb .	20	Abraham Lyle & Sons Ltd., London, Eng.	Lyles Golden Syrup. warranted.	+ 23·6	22·0	34·03	81 96	18 04

APPENDIX BB.

BULLETIN No. 178—SPIRIT OF CAMPHOR (SPIRITUS CAMPHORÆ).

OTTAWA, March 26, 1909.

WM. HIMSWORTH, Esq.,
Acting Deputy Minister of Inland Revenue.

SIR,—I beg to hand you herewith a report upon seventy-four (74) samples of spirit of camphor, purchased throughout Canada in January of this year.

The collection was made in consequence of some complaints to the effect that this article was offered with so weak a spirit-strength as to make it useless for the purposes to which it is applied by physicians and the public.

The present examination has regard solely to the spirit-strength of the alcohol used. It is intended, in the course of the coming year, to make another collection, in which the content of camphor, and the nature of the alcohol employed as a solvent will be determined.

The British Pharmacopœia prescribes spiritus rectificatus (90 per cent alcohol) as the proper solvent for preparation of spirit of camphor. This spirit has a specific gravity 0·834; and the resulting spirit of camphor is required to have a specific gravity varying between 0·843 and 0·847. There is an increase of volume of approximately 10 per cent on dissolving camphor in alcohol, according to pharmacopœial directions for preparation of spirit of camphor. Allowance being made for this increase of volume, the finished spirit of camphor represents an alcoholic solution containing practically 81 per cent by volume of alcohol.

Reasonable allowance being made for loss of alcohol due to evaporation during manufacture and the opening of bottles in dispensing, I have considered it right to pass all samples showing over 75 per cent by volume of alcohol. This amount of alcohol is sufficient to retain in solution the whole of the camphor used in the manufacture of pharmacopœial spirit of camphor.

Twelve samples show less than 75 per cent of alcohol. Of this number eight (8) samples contain above 70 per cent, and may be regarded rather as doubtful, than as actually adulterated, in the sense of having been made with less spirit than the pharmacopœia requires. Four (4) samples, are distinctly too low in spirit, and must be regarded as adulterated under the Act. These are:—

No.	36810	containing	54·08	per cent Alcohol.
"	36812	"	56·72	" "
"	937	"	58·60	" "
"	22903	"	60·84	" "

This is the first occasion of inspecting spirit of camphor; and as it is purposed to institute another inspection, in the course of which a more detailed study of the article will be undertaken, it may be considered rather satisfactory than otherwise, that I am able to report an adulteration of less than 5·5 per cent.

I beg to recommend the publication of this report as Bulletin No. 178.

I have the honour to be, sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

BULLETIN No. 178—SPIRIT OF CAMPHOR—(Spiritus Camphoræ).

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Sp. Gr. Distillate to 4 Vols.	Results of Analysis. Alcohol by Volume.
									p. c.
DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.									
1909.									
Jan. 12	Spirit of Camphor...	33831	Buckley Bros., Halifax, N.S ..	4 oz..	35	Vendors	....	0·9754	83·20
" 14	" ...	33832	A. A. Thompson, Halifax, N.S.	4 " ..	25	Vendor.....		0·9751	84 36
" 19	" ...	33833	H. E. Wilson, Halifax, N.S	4 " ..	30	"		0 9756	82·44
" 20	" ...	33834	W. F. Odell, Truro..... ..	4 " ..	30	"		0·9749	85·16
" 20	" ...	33835	Hub. Drug Store, Truro.....	4 " ..	40	"		0·9755	82·84
DISTRICT OF PRINCE EDWARD ISLAND—THEO. MOORE, INSPECTOR.									
Jan. 7	Spirit of Camphor...	31448	A. W. Reddin, Charlottetown..	4 oz..	40	Vendors..... ...	.....	0·9761	80·60
" 7	" ...	31449	G. E. Hughes, Charlottetown...	4 " ..	40	"	.....	0·9750	84·76
" 7	" ...	31450	Johnson & Johnson, Charlotte-town.	4 " .	40	"	....	0·9763	79·84
" 11	" ...	31451	A. W. P. Gourlie, Summerside.	4 " ..	45	"	....	0·9784	71·24
" 12	" ...	31452	Edgar Keir, Kensington.....	4 " ..	40	"	.....	0·9751	84·36

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.

Jan.	11	Spirit of Camphor...	29882	George A. Moore, St. John, N.B.	4 oz.	40	Vendor			0·9751	84·36
"	16	" ...	29883	A. J. Ryan, Fredericton, N.B.	4 "	20	"			0·9757	82·08
"	18	" ...	29884	Garden Bros., Woodstock	4 "	20	"			0·9751	84·36
"	25	" ...	29885	Sussex Mercantile Co., Ltd	4 "	45	C. H. Fairweather, Dispenser, Sussex Mercantile Co.			0·9751	84·36
"	27	" ...	29886	A. E. Shaw, Newsastle, N.B.	4 "	20	A. E. Shaw, Newcastle, N.B.			0·9756	82·44

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

Jan.	11	Spirit of Camphor...	36808	A. Martineau, 734 St. Valier St. Quebec.	4 oz.	25	Vendor			0·9749	85·16
"	11	" ...	36809	Jos. Masson, 808 St. Valier St., Quebec.	4 "	25	"			0·9763	79·84
"	12	" ...	36810	G. P. Plamondon, 122 St. Joseph St., Quebec.	4 "	25	"			0·9829	54·08
"	12	" ...	36811	P. C. Lachevrotiere, 224 St. John St., Quebec.	4 "	40	"			0·9734	86·85
"	12	" ...	36812	C. P. Delisle, 379½ St. John St., Quebec.	4 "	25	"			0·9822	56·72

DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.

Jan.	11	Spirit of Camphor...	935	Pharmacie Larochelle	4 oz.	20	Vendor			0·9764	77·48
"	13	" ...	936	Dr. Bedard, Drummondville	4 "	30	"			0·9761	80·60
"	19	" ...	937	Dr. C. P. Verdon, Granby	4 "	35	"			0·9817	58·60
"	19	" ...	938	Dr. Demers, Farnham	4 "	35	Lyman Knox, Montreal.			0·9761	80·60
"	20	" ...	939	Dr. Guy, Jt. Jean, Que	4 "	40	Vendor			0·9757	82·08

BULLETIN No. 178—SPIRIT OF CAMPHOR—(Spiritus Camphoræ).

Date of Collection.	Nature of Sample	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Sp. Gr. Distillate to 4 Vols.	Results of Analysis. Alcohol by Volume.
			DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.						
1909.									p.c.
Jan. 5	Spirit of Camphor...	32671	E. Gagnon, 93 St. Valier Ville, St. Louis, P.Q.	4 oz.	35	Vendor		0·9778	73·92
" 5	" ...	32672	H. R. Huot, 68 Laurier Av., St. Louis, P.Q.	4 "	45	"		0·9746	86·36
" 11	" ...	32673	James Fortune, Huntingdon, P.Q.	4 "	30	"		0·9766	78·72
" 14	" ...	32674	Dr. J. B. Martin, 212 St. Joseph St., Lachine, P.Q.	4 oz.	40	"		0·9742	87·96
" 22	" ...	32675	G. H. Christie, Lachute	4 "	30	"		0·9742	87·96
			DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.						
Jan. 8	Spirit of Camphor...	22901	W. G. Bolster, Chesterville	4 oz.	40	Vendor	Sold as Spirit of Camphor after purchase of sample Vendor said it was made with Columbia Spirits.	0·9782	72·12
" 12	" ...	22902	D. A. Muirhead, Carleton Place	4 "	30	"	Sold as Spirit of Camphor	0·9761	80·60
" 13	" ...	22903	Chas. A. Adams, Kemptville	4 "	30	McLennan, Kemptville	" "	0·9811	60·84
" 19	" ...	22904	J. A. Musgrove, Ottawa	4 "	45	Vendor	" "	0·9772	76·32
" 20	" ...	22905	The Modern Pharmacy, Hull, P.Q.	4 "	40	"	" "	0·9740	88·72

DISTRICT OF KINGSTON—JAS. HOGAN, INSPECTOR.

Jan.	8	Spirit of Camphor...	39431	W. W. Gibson, Kingston..	1 oz.	40	Vendor			0·9758	81·72
"	11	" ...	39432	D. Bleeker, Belleville....	1 "	30	"			0·9760	80·96
"	11	" ...	39433	A. L. Gun, Belleville...	1 "	20	"			0·9751	84·36
"	11	" ...	39434	W. J. Davison, Port Hope.....	1 "	33	"			0·9758	81·72
"	12	" ...	39435	McDermid & Jury, Peterboro..	4 "	40	Vendors...			0·9760	80·96

DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.

Jan.	8	Spirit of Camphor...	36177	M. E. Vanzant, Ltd., Toronto..	4 oz.	35	Vendors			0·9747	85·96
"	11	" ...	36178	Littlewoods Pharmacy, Hamilton	4 "	35	Vendor			0·9749	85·16
"	13	" ...	36179	F. W. Mills, Hamilton	4 "	35	"			0·9745	86·76
"	15	" ...	36180	Walker & Abbs, St. Catharines.	4 "	35	Vendors			0·9747	85·96
"	19	" ...	36181	The T. Eaton Drug Co., Ltd., Toronto.	4 "	30	"			0·9750	84·76

DISTRICT OF LONDON—T. KIDD, INSPECTOR.

Jan.	6	Spirit of Camphor...	30556	H. O. Dunlop, Goderich, O ...	4 oz.	40	Vendor			0·9742	87·96
"	11	" ...	30568	W. S. R. Holmes, Clinton, O ..	4 "	40	Not known			0·9745	86·76
"	14	" ...	30578	E. A. Rea, Stratford	4 "	40	Vendor			0·9754	83·20
"	16	" ...	30588	J. D. McKee, Guelph	4 "	40	"			0·9746	86·36

BULLETIN No. 178—SPIRIT OF CAMPHOR—(Spiritus Camphoræ).

Date of Collection.	Nature of Sample	No. of Sample.	Name and Address of Vendor.	Cost. Quantity	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Sp. Gr. Distillat o 4 Vol	Results of Analysis. Alcohol by Volume.
									p. c.
DISTRICT OF WINDSOR—JAS. TALBOT, INSPECTOR.									
1909. Jan. 7	Spirit of Camphor...	34735	H. Robertson, Sarnia.....	4 oz..	40	Vendor.....		0·9737	89·84
" 7	" ...	34739	Peter McGibbon, Sarnia..	4 " ..	25	"		0·9762	80·24
" 8	" ...	34743	W. H. Dale, Petrolia..... ...	4 " ..	50	"		0·9747	85·96
" 11	" ...	34750	G. Ionson, Ingersoll.....	4 " ..	40	"		0·9749	85·16
" 11	" ...	34751	F. G. Walley, Ingersoll.....	4 " ..	40	"		0·9786	70·36
DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.									
Jan. 13	Spirit of Camphor...	35821	Morrison's Drug Store, Virden, M.	4 oz..	40	Vendor.....		0·9755	82·84
" 14	" ...	35822	E. W. Bailey, Hartney, M.....	4 " ..	40	"		0·9749	85·16
" 19	" ...	35823	Millers Pharmacy, Shoal Lake..	4 " ..	35	Not known.....		0·9748	85·56
" 19	" ...	35824	H. K. Clatway, Shoal Lake....	4 " ..	35	Vendor.....		0·9750	84·76
" 21	" ...	35825	F. L. Brown, Winnipeg.....	4 " ..	30	"		0·9773	75·92

DISTRICT OF CALGARY—R. W. FLETCHER, INSPECTOR

Jan.	15	Spirit of Camphor.	35382	W. McLean, Calgary	4 oz.	25	Vendor			0·9743	87·56
"	22	"	35383	B. F. Souch, Medicine Hat	4 "	50	"			0·9749	85·16
"	22	"	35384	E. M. Cawner, Medicine Hat	4 "	50	"			0·9767	78·76
"	22	"	35385	C. T. Pringle, Medicine Hat	4 "	50	"			0·9776	74·72
"	26	"	35386	Esdales Drug Store, Calgary	4 "	40	"			0·9781	72·56

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

Jan.	29	Spirit of Camphor	37566	Marett. Reid, Vancouver	4 oz.	50	Vendors			0·9743	87·56
"	29	"	37567	Heroog & Strachan, Vancouver	4 "	40	"			0·9746	86·36
"	29	"	37568	L. Henderson, Vancouver	4 "	30	Vendor			0·9760	80·96
"	29	"	37569	Nelsons Drug Store, Vancouver	4 "	30	"			0·9786	70·36
"	29	"	37570	City Drug Store, Vancouver	4 "	60	"			0·9776	74·72

DISTRICT OF VICTORIA—D. O'SULLIVAN, INSPECTOR.

Jan.	26	Spirit of Camphor	39289	Dean & Hiscocks, Victoria	4 oz.	50	Vendors			0·9754	83·20
"	26	"	39290	Hall & Co., Victoria	4 "	40	"			0·9737	89·84
"	26	"	39291	W. Jackson & Co., Victoria	4 "	35	"			0·9743	87·56
"	27	"	39292	W. S. Perry, Victoria	4 "	40	Vendor			0·9769	77·96
"	27	"	39293	F. J. Williams, Victoria	4 "	50	"			0·9752	83·96

APPENDIX CC.

BULLETIN No. 179—TINCTURE OF GINGER (TINCTURA ZINGIBERIS).

Ottawa, March 30, 1909.

Wm. Himsworth, Esq.,
Acting Deputy Minister of Inland Revenue.

Sir,—I beg to hand you a report upon 75 samples purchased as tincture of ginger during the month of January of this year. All the inspectoral districts of Canada are represented.

This report has regard solely to the strength of the alcohol used in these preparations, which were obtained in drug shops, and should conform to the requirements of the pharmacopœias.

The British pharmacopœia demands the employment of 90 per cent spirit; the United States pharmacopœia demands alcohol of 94·9 per cent; both percentages have regard to volume.

It will be seen that sixty-one (61) samples constituting above 80 per cent of the collection, contain alcohol of above 80 per cent strength in the finished product. These may be looked upon as essentially complying with pharmacopœal requirements, allowing for volatilization of alcohol in opening bottles in dispensing.

The remaining fourteen (14) samples are as follows:—

District.	Number.	Alcohol.
Prince Edward Island	31455	77·20
	31456	71·94
Quebec	36813	76·22
	36814	72·64
	36815	76·50
St. Hyacinthe	943	70·40
Ottawa	22907	74·82
	22908	72·52
	22909	49·96
Kingston	39440	*59·72
Toronto	36171	66·30
Vancouver	37562	†63·92
	37564	75·24
	37565	†43·78

* Sold as essence. † Made from fluid extract of ginger.

As pointed out in Bulletin 110 (Oct. 1905), alcoholic preparations of ginger are known as Tinctures, Essences and Extracts. The tincture is the only one of these which is recognized officially by the British pharmacopœia. The United States pharmacopœia (8th revision) describes a fluid extract of ginger, made with alcohol of the same strength as that contained in the tincture, while the quantity of ginger used is five times as much as in the preparation of the tincture. It is possible that a satisfactory tincture might be made from this fluid extract, by dilution with alcohol; but the phar-

macopœia does not authorize preparation of the tincture in this way; and it is not to be taken as proved that a tincture so made could properly be substituted for the official tincture. Under no circumstances could the use of a weaker alcohol in dilution be justified.

Essence of ginger is not a pharmacopœal preparation; and should not be dispensed. As a mode of supplying ginger for culinary purposes, the essences have a proper place in the grocery trade.

It will be seen that one of the samples low in alcohol (No. 39440) is sold as an essence of ginger, and should not have been accepted by our inspector. Two others (Nos. 22909 and 36171) contain less than 70 per cent alcohol, and cannot by any reasonable interpretation be looked upon as coming up to pharmacopœal requirements. Numbers 37562 and 37565 are stated to be made from the Fluid Extract. Even were such a method of preparing the tincture allowable, the samples in question have been made by dilution with an alcohol much below the strength required by the pharmacopœia. They must be regarded as adulterated under the Act.

I beg to recommend the publication of this report as Bulletin No. 179.

I have the honour to be, sir,

Your obedient servant,

A. McGILL,
Chief Analyst.

BULLETIN No. 179—TINCTURE OF GINGER.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacture or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Sp. Gr. of Sample.	Sp. Gr. of Distillate to equal Vol.	Difference.	Alcohol p.c. by Weight.	Alcohol p.c. by Volume.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF NOVA SCOTIA—R. J. WAUGH, INSPECTOR.													
1909.											p.c.	p.c.	
Jan. 12	Tincture of Ginger	33836	J. McD. Taylor, Halifax, N.S.	4 oz.	30	Vendor		0·8280	0·8267	0·0013	88·48	92·16	
" 13	"	33837	C. A. Barnstead, Halifax, N.S.	4 "	30	Unknown		0·8454	0·8449	0·0005	81·40	86·64	
" 15	"	33838	C. E. Huggins, Halifax, N.S.	4 "	30	Vendor		0·8397	0·8385	0·0012	83·88	88·60	
" 20	"	33839	Crowe Bros., Truro, N.S.	4 "	30	"		0·8276	0·8270	0·0016	88·36	92·04	
" 20	"	33840	W. H. Stevens, Dartmouth	4 "	35	"		0·8272	0·8251	0·0021	89·12	92·64	
DISTRICT OF PRINCE EDWARD ISLAND—THEO. MOORE, INSPECTOR.													
Jan. 8	Tincture of Ginger	31453	J. G. Jamieson, Charlottetown	4 oz.	40	Vendor		0·8545	0·8528	0·0017	78·20	84·02	
" 8	"	31454	Reddin Bros., Charlottetown	4 "	40	Vendors		0·8261	0·8239	0·0022	89·58	92·96	
" 11	"	31455	P. N. Enman, Summerside	4 "	35	Vendor		0·8766	0·8713	0·0046	70·32	77·20	Doubtful.
" 11	"	31456	McFadyen & McLellan, Summerside.	4 "	60	Can. Drug Co., St. John, N.B.		0·8896	0·8851	0·0045	64·52	71·94	"
" 14	"	31457	Gillis & Sons, Charlottetown	4 "	40	Nat. Drug Co., Halifax.		0·8415	0·8385	0·0030	83·88	88·60	

DISTRICT OF NEW BRUNSWICK—J. C. FERGUSON, INSPECTOR.

Jan.	7	Tincture of Ginger	29887	Nat. Drug & Chem. Co., Ltd., St. John, N.B.	4 oz.	44	Vendors	... ...	0·8299	0·8270	0·0029	88·36	92·04		
"	11	" ..	29888	William Hawker & Son, St. John, N.B.	4 " ..	35	"	...	0·8249	0·8229	0·0020	90·00	93·28		
"	16	" .	29889	Hunt & McDonald, Fredericton	4 " ..	40	"	...	0·8107	0·8401	0·0006	83 27	88·12		
"	26	" ..	29890	J. McD. Cooke, Moncton	4 " ..	40	Vendor... ...	... ...	0·8293	0·8287	0·0006	87 69	91·54		
"	28	" ..	29891	A. Chipman, Smith & Co., Bathurst, N.B.	4 " ..	30	Vendors	Sample is essence of ginger; is much stronger than the official B. P. Tincture.	0·8650	0·8639	0·0011	73·42	*79 88		

DISTRICT OF QUEBEC—E. BELAND, INSPECTOR.

Jan.	11	Tincture of Ginger	36813	A. Martineau, Quebec	4 oz.	30	Dr. Ed. Morin, Quebec.	... ...	0·8826	0·8739	0·0087	69·25	76·22	Doubtful.	
"	11	" ..	36814	Jos. Masson, Quebec	4 " ..	25	Vendor ...	... ...	0·8849	0·8833	0·0016	65·29	72·64	"	
"	12	" ..	36815	G. P. Plamondon, Quebec	4 " ..	40	"	... ...	0·8765	0·8732	0·0033	69·54	76 50	"	
"	12	" ..	36816	P. C. Lachevrotiere, Quebec	4 " ..	40	C. E. Frosst & Co., Montreal.	... ...	0·8242	0·8194	0·0048	91·21	91·16		
"	12	" ..	36817	C. P. Delisle, Quebec	4 " ..	25	Vendor.. ..	... ...	0·8297	0·8295	0·0002	87 38	91·30		

DISTRICT OF ST. HYACINTHE—J. C. ROULEAU, INSPECTOR.

J .	11	Tincture of Ginger	911	Dr. Larose, St. Ours	3 oz.	25	Vendor.... ...	... ...	0·8485	0·8429	0·0056	82·19	87·26		
"	14	" ..	942	W. H. Griffith, Sherbrooke....	4 " ..	40	The Nat. Drug & Chemical Co., Montreal.	... ...	0·8453	0·8434	0·0019	82·00	87·12		
"	19	" ..	943	L. E. Brown, Granby	3 " ..	30	Vendor....	... ...	0·8994	0·8889	0·0005	62 86	70·40	Doubtful.	
"	20	" ..	944	Wright & Co., St. Jean.....	4 " ..	30	"	... ...	0·8257	0·8238	0·0019	89 62	93·00		
"	21	" ..	946	Pharmacie St. Hyacinthe	4 " ..	30	"	... ...	0·8284	0·8283	0·0001	87·85	91·66		

* Essence of ginger.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Sp. Gr. of Sample.	Sp. Gr. of Distillate to equal Vol.	Difference.	Alcohol p. c. by Weight.	Alcohol p. c. by Volume.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF MONTREAL—J. J. COSTIGAN, INSPECTOR.													
1909.													
Jan. 6	Tincture of Ginger	32676	J. J. Wemfield, 458 St. Lawrence St., Montreal.	4 oz.	45	Nat. Drug & Chem. Co.	.....	0·8300	0·8270	0·0030	p.c. 86·36	p.c. 92·04	
" 8	"	32677	A. Goyette, 141 St. Catherine St., Montreal.	4 "	35	Lyman, Knox & Co., Montreal.	.....	0·8280	0·8247	0·0033	88·27	92·74	
" 14	"	32678	Dr. J. A. Clement, Lachine, P.Q.	4 "	45	Not known.....	.....	0·8559	0·8555	0·0004	77·08	83·06	
" 14	"	32679	E. A. Ranson, Lachine, P.Q.	4 "	45	Vendor.....	.....	0·8591	0·8582	0·0009	75·95	82·10	
" 22	"	32680	G. H. Cristie, Lachute, P.Q.	4 "	30	Lyman, Sons & Co., Montreal.	.....	0·8636	0·8582	0·0054	75·95	82·10	
DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.													
Jan. 12	Tincture of Ginger	22906	W. J. Hughes, Carleton Place.	4 oz.	40	Vendor.....	Sold as tincture of ginger.	0·8328	0·8326	0·0002	86·19	90·44	
" 12	"	22907	D. H. McIntosh, M.D., Carleton Place.	4 "	40	"	"	0·8800	0·8777	0·0023	67·67	74·82	Doubtful.
" 18	"	22908	The Standard Drug Co., Ottawa	4 "	35	Vendors.....	"	0·8849	0·8836	0·0013	65·17	72·52	"
" 18	"	22909	W. F. Garland, Ottawa.....	4 "	35	Vendor.....	"	0·9359	0·9357	0·0002	41·95	49·96	Adulterated.
" 20	"	22910	Hull Medical Hall, Hull.....	4 "	40	Vendors.....	"	0·8340	0·8337	0·0003	85·77	90·08	

14—30

DISTRICT OF KINGSTON—JAS. HOGAN, INSPECTOR

Jan.	8	Tincture of Ginger	39436	W. W. Gibson, Kingston	4 oz	40	Vendor		0·8319	0·8287	0·0032	87·69	91·54		
"	11	" ..	39437	D. Blecker, Belleville	4 " ..	50	"		0·8309	0·8267	0·0042	88·48	92·16		
"	11	" ..	39438	A. L. Glen, Belleville	4 " ..	30	"		0·8591	0·8549	0·0042	77·33	83·26		
"	11	" ..	39439	W. J. B. Davison, Port Hope	4 " ..	28	"		0·8407	0·8354	0·0053	85·12	89·58		
"	12	Essence of Ginger	39440	McDermid & Jury, Peterboro	4 " ..	40	"		0·9211	0·9138	0·0073	51·88	†59 72	Collected by mistake.	

DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.

1909.															
Jan.	7	Tincture of Ginger	36171	The Broadway Drug Co., Toronto.	4 oz ..	35	Lyman Bros., Ltd. Toronto.		0·9040	0·8989	0·0051	58 55	66·30	Adulterated.	
"	12	" ..	36172	Hawkins, Ltd., Hamilton	4 " ..	35	Vendors		0·8287	0·8267	0·0020	88·48	92 16		
"	12	" ..	36173	R. C. Reynolds, Hamilton	4 " ..	30	"		0·8314	0·8287	0·0027	87·69	91·54		
"	15	" ..	36174	F. W. Jeffs, St. Catherines	4 " ..	40	Lyman Bros., Ltd. Toronto.		0·8462	0·8457	0·0005	81·08	86·38		
"	19	" ..	36175	W. H. Lee, Toronto	4 " ..	40	Vendor		0·8275	0·8275	0·0000	88·16	91·90		

DISTRICT OF LONDON—T. KIDD, INSPECTOR.

Jan.	11	Spirit of Ginger	30567	W. A. McConnell, Clinton	4 oz ..	40	Nat. Chem. Co., London.		0·8484	0 8442	0·0042	81·68	86·88		
"	12	Tincture of Ginger	30571	W. B. Barley, Mitchell	4 " ..	40	W. B. Barley, Mitchell.		0·8423	0·8414	0 0009	82·77	87·74		
"	16	" ..	30586	Borgadus & Co., Guelph	4 " ..	40	Vendors		0·8508	0 8501	0·0007	79 28	84·90		
"	16	" .	30587	J. B. Broadfoot, Guelph	4 " ..	40	J. B. Suttleworth, Toronto.		0·8287	0·8279	0·0008	88·00	91·78		
"	16	" ..	30589	J. D. McKee, Guelph	4 " ..	40	Lyman Bros., Toronto		0·8519	0·8541	0·0008	77·67	83·58		

Orby's Essence.

BULLETIN No. 179—TINCTURE OF GINGER.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report.	Results of Analysis. Sp. Gr. of Sample.	Sp. Gr. of Distillate to equal Vol.	Difference.	Alcohol p. c. by Weight.	Alcohol p. c. by Volume.	Remarks and Opinion of the Chief Analyst.
DISTRICT OF WINDSOR—JNO. TALBOT, INSPECTOR.													
1909. Jan. 7	Tincture of Ginger	34737	R. T. Geary, Sarnia	4 oz.	30	Vendor		0·8233	0·8190	0·0043	p.c. 91·36	p.c. 94·26	
" 8	"	34745	J. McRobie, Petrolia	4 "	40	"		0·8694	0·8594	0·0100	75·41	81·64	
" 8	"	34746	J. E. Platt, London	6 "	60	Not known.		0·8338	0·8329	0·0009	86·08	90·32	
" 11	"	34749	R. N. Thurtell, Ingersoll	3 "	25	Vendor		0·8272	0·8267	0·0005	88·48	92·16	
" 11	"	34752	J. G. Gayfer, Ingersoll	4 "	35	"		0·8397	0·8329	0·0068	86·08	90·32	
DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR.													
Jan. 12	Tincture of Ginger	35831	Vrooman & McCullough, Winnipeg.	4 oz.	25	Not known		0·8723	0·8601	0·0122	75·09	81·34	
" 12	"	35832	The Clarendon Pharmacy, Winnipeg.	4 "	35	Davis & Lawrence Co., Montreal.		0·8584	0·8555	0·0029	77·08	83·06	
" 13	"	35833	Higginbotham & Son, Virden.	4 "	20	Vendors		0·8382	0·8377	0·0005	84·20	88·86	
" 14	"	35834	F. Woodhull & Co., Hartney	4 "	45	"		0·8338	0·8329	0·0009	86·08	90·32	
" 21	"	35835	Brooking's Drug Store, Winnipeg.	4 "	30	"		0·8340	0·8340	0·0000	85·62	89·96	

DISTRICT OF CALGARY R. W. FLETCHER, INSPECTOR.

Jan.	15	Tincture of Ginger	35387	Oliver Bros., Calgary	4 oz.	25	Vendors			0·8287	0·8287	0·0000	87·69	91·55		
"	29	"	35388	J. H. Lives, Edmonton	4 "	25	Park, Davis & Co., Walkerville.			0·8532	0·8501	0·0051	79·28	84·90		
"	29	"	35389	E. M. Carpenter, Edmonton	4 "	40	Vendor			0·8280	0·8280	0·0000	87·96	91·75		
"	29	"	35390	Algonquin Pharmacy, Edmonton.	4 "	30	John Wyeth & Bro's Extract, Philadelphia.			0·8253	0·8220	0·0033	90·29	93·50		
"	29	"	35391	Edmonton Drug Co., Edmonton.	4 "	50	Edmonton Drug Co., Edmonton.			0·9263	0·8207	0·0056	90·75	93·82		

DISTRICT OF VANCOUVER—J. F. POWER, INSPECTOR.

Jan.	29	Tincture of Ginger	37561	C. Muddell, Vancouver	4 oz.	50	Lyman & Sons, Montreal.			0·8640	0·8621	0·0019	74·18	80·54		
"	29	"	37562	Knowlton Drug Store, Vancouver.	4 "	50	Vendor	Made from Park Davis Fluid Ext. Ginger.		0·9039	0·9045	0·0055	56·09	63·92	Adulterated.	
"	29	"	37563	Central Drug Store, Vancouver	4 "	50	"			0·8293	0·8287	0·0006	87·69	91·54		
"	29	"	37564	Owl Drug Store, Vancouver	4 "	40	Not known			0·8785	0·8766	0·0019	68 13	75·24	Doubtful.	
"	29	"	37565	McDuffee Bros. & Co., Vancouver.	4 "	40	Vendors	Made from Park Davis Fluid Ext. Ginger.		0·9675	0·9457	0·0118	36·72	43·78	Adulterated.	

DISTRICT OF VICTORIA—D. O'SULLIVAN, INSPECTOR.

Jan.	27	Tincture of Ginger	39284	W. Jackson & Co., Victoria	4 oz.	35	Baiss Bros. & Stephenson, London, Eng.			0·8287	0·8283	0·0004	87 85	91 66		
"	27	"	39285	W. S. Terry, Victoria	4 "	40	Vendor			0·8514	0·8491	0·0023	79·68	85·24		
"	27	"	39286	D. E. Campbell, Victoria	4 "	35	"			0·8479	0·8471	0·0008	80·50	85·90		
"	27	"	39287	F. J. Williams, Victoria	4 "	50	"			0·8438	0·8426	0·0012	82·31	87·38		
"	27	"	39288	Geo. A. Fraser, Victoria	4 "	40	"			0·8280	0·8247	0·0033	88·27	92·74		

REPORT

OF THE

MINISTER OF AGRICULTURE

FOR THE

DOMINION OF CANADA

FOR THE

YEAR ENDED MARCH 31

1909

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
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1909

[No. 15—1910.]

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REPORT

OF THE

MINISTER OF AGRICULTURE

1908-09.

To His Excellency the Right Honourable Sir Albert Henry George, Earl Grey, Viscount Howick, Baron Grey of Howick, in the County of Northumberland, in the Peerage of the United Kingdom, and a Baronet; Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, &c., &c., Governor General of Canada.

May it Please Your Excellency:

I have the honour to submit to Your Excellency a report of the Department of Agriculture for the fiscal year ended March 31, 1909.

I.—GENERAL REMARKS.

A synopsis of the operations of the department and of the various branches thereof which have been efficiently carried out during the past year ended March 31, 1909, is laid before Your Excellency.

The legislation affecting the department during the fourth session of the Tenth Parliament after March 31, 1908, consisted of:—

Chapter 13, 7-8 Edward VII, intituled, 'An Act to repeal the Canned Foods Act.'

Chapter 29, 7-8 Edward VII, intituled, 'An Act to amend the Gold and Silver Marking Act.'

Chapter 30, 7-8 Edward VII, intituled, 'An Act respecting the sale and marking of manufactures of gold and silver and gold and silver plated ware.'

Chapter 35, 7-8 Edward VII, intituled, 'An Act to amend the Inspection and Sale Act.'

Chapter 47, 7-8 Edward VII, intituled, 'An Act to amend the Meat and Canned Foods Act.'

Chapter 72, 7-8 Edward VII, intituled, 'An Act to amend the Timber Marking Act.'

By an order in council of April 6, 1908, the order in council of January 14, 1907, establishing regulations relating to animals quarantine was amended by expunging the words 'other than horses' in the second line of clause (*a*) of section 7 thereof, and by adding the following clause to section 7: '(*d*) The provisions of this section shall not apply to the importation of horses from any of the countries of Europe.'

These amendments to come into force and to have effect on and from the date of order.

Vide, *Canada Gazette*, vol. xli, page 2684.

By an order in council of May 21, 1908, it was ordered that on and after the first day of July, 1908, the regulations established by order in council of November 8, 1887, respecting 'animals for the improvement of stock,' be revoked, and the following regulations prescribed in respect of the free entry under the customs tariff of horses, cattle, sheep, goats, asses, swine and dogs, for the improvement of stock.

REGULATIONS.

1. No animal imported for the improvement of stock shall be admitted free of duty unless the importer is domiciled in Canada or is a British subject, and furnishes a certificate of the record and pedigree in a list of registers designated from time to time by the Minister of Customs, showing that the animal is pure bred, and has been admitted to full registry in a book of record established for the breed.

An affidavit by the owner, agent or importer that such animal is the identical animal described in said certificate of record and pedigree must be presented.

2. In case such certificate is not at hand at the time of the arrival of the animal, the entry for duty may be accepted subject to the refund of the duty upon production of the requisite certificates and proofs in due form satisfactory to the collector within one year from the time of entry.

3. The form of certificate of record and pedigree to be accepted for the free importation of animals for the improvement of stock, and the customs procedure in connection therewith shall be subject to the directions of the Minister of Customs.

Vide *Canada Gazette*, vol. xli, page 3097.

By an order in council of May 23, 1908, the regulations relating to a disease in animals known as glanders, established by order in council dated March 25, 1905, were amended by extending the time for retesting animals from 'four' months to 'twelve' months, and it was ordered that the words 'four months' in section 6 of the above cited order in council be expunged and the words 'twelve months' substituted therefor.

Vide *Canada Gazette*, vol. xli, p. 3097.

By an order in council of May 23, 1908, with a view to eradicating the disease known as mange existing amongst cattle throughout portions of the provinces of Saskatchewan and Alberta, the following regulations were made (see Appendix No. 14).

In November of this year, I started for Rome, Italy, for the purpose of representing Canada at the General Assembly of the International Institute of Agriculture, accompanied by my secretary, Mr. T. K. Doherty, and the Honourable Arthur Boyer, of Montreal, who was also nominated by order in council, to represent this country. This was the first meeting of the General Assembly of the Institute since Canada had adhered to that organization.

The International Institute of Agriculture, with its permanent headquarters at Rome, was established as the result of a series of resolutions adopted at a conference of agricultural representatives assembled from all countries of the world, which conference was called in 1905 by His Majesty the King of Italy for the purpose of considering the establishment of an organization for the benefit of agriculture generally throughout the world. (See Appendix No. 19.)

Canada was not invited to send a representative to this first conference. The British Empire was represented by Lord Jersey, Lord Minto, Sir Thomas Elliott, permanent head of the Department of Agriculture in Great Britain, and several others. The resolutions of this first conference on which the organization of the Institute was based, were referred to the governments of the various countries represented, and each of these was asked whether they would adhere to the organization.

Some time elapsed before replies were received by the Government of Italy, but by the end of 1907 some thirty countries had agreed to the organization of the Institute.

In the meantime, in consequence of representations made by the British Government, invitations were extended by the King of Italy to the British dominions beyond the seas. Canada receiving such an invitation, agreed by an order in council, passed on March 20, 1907, to adhere to the Institute.

In the very beginning of 1908, the various countries which had agreed to adhere to the Institute, were invited to send representatives to attend a meeting held in Rome in May of that year. This was called a meeting of the Permanent Committee of the Institute, which committee was asked to formulate and complete an organization. Dr. J. G. Rutherford, V.S., H.A.R.C.V.S., Veterinary Director General and Live Stock Commissioner of Canada, was nominated as representative of the Dominion of Canada at that meeting.

The constitution and organization of the Institute was then discussed and almost completed. A second meeting of this Permanent Committee was held in November, 1908, when the draft of the constitution and organization was completed for submission to the meeting of the General Assembly. The General Assembly was to meet in November following, and to this meeting I went as the representative of the Dominion of Canada.

Dr. J. G. Rutherford attended the meeting of the Permanent Committee held in November, and was also named one of our representatives for the General Assembly held during that month. At this General Assembly, there was a very complete

representation of the most important countries of the world. The Minister of Foreign Affairs of Italy presided, and welcomed the delegates on behalf of His Majesty the King, the government, and the people of Italy.

The constitution as formulated by the committee charged with drawing it up, was thoroughly discussed, slightly modified, and adopted as the permanent constitution of the International Institute of Agriculture. This constitution provides for the establishment in Rome of the offices of the Institute, and for the staff, which is to be drawn from the various countries represented. Machinery is provided for the collection of reports and statistics of agriculture from all the countries of the world, the object being to compile and co-ordinate these reports, and redistribute them in condensed and convenient form for the use of the various countries. Statistical work and the collection of information of all kinds in regard to agricultural development, invention and progress, are dealt with. The Institute is intended to be in a short phrase, an agricultural clearing house for the world, which will supply to each country full information as to what is going on in the others. (See Appendix No. 20.)

His Majesty the King of Italy has taken a keen interest in the organization of the Institute. He has presented it with the revenues of a large personal estate, which supplies in the neighbourhood of $60,000 a year towards the expenses of the Institute. As these revenues were set aside for this purpose from the time of the meeting of the first conference, the accumulated proceeds for three years was utilized for the erection of a permanent home for the Institute. A splendid building with spacious offices, &c., has been erected in the Borghese Gardens just outside the Porta del Popolo of the city of Rome. In future these revenues accrue for the ordinary expenses of the Institute, which are otherwise defrayed by contributions from the various countries adhering. For this purpose and for the allotment of voting rights in the administration of the Institute, the countries are divided into five classes, I, II, III, IV, V. When Canada first adhered to the Institute, she elected to be placed in class IV, the contribution of which was 3,000 frs. ($579).

In view, however, of the importance of agriculture in Canada, and to the position which our representatives were able to take in the meeting of the General Assembly, I recommended to my colleagues that Canada should be placed in the second class, the contribution of which is 12,000 frs. ($2,316), which recommendation was agreed to and acted upon while I was in Rome attending the meeting of the General Assembly.

After the adoption of the constitution and organization by the General Assembly, the representatives proceeded to the election of officers for the ensuing year. Senor Titoni, former president, was reelected president, and accepted the position. In the election of first vice-president, His Excellency the Earl of Monts, German Ambassador and Chief of the German Legation, who represented that empire, proposed that the Minister of Agriculture for Canada should be elected to the position. This nomination was seconded by Mr. Griscom, American Ambassador in Italy, and was carried unanimously.

Mr. Yermoloff, the principal representative of the Empire of Russia, was elected second vice-president.

The budget for the ensuing year was adopted, and the committee which had worked out the form of constitution was continued and made permanent.

In consequence of the fact that Dr. J. G. Rutherford was required in Canada in connection with the duties of his permanent work, the Honourable Arthur Boyer was asked to take his place, at all events for the present, on the Permanent Committee. He was so appointed by an order in council dated November 5, 1908. The General Assembly adjourned to meet again a year hence.

The Permanent Committee held its next meeting immediately on the adjournment of the General Assembly, and organized by the election of Count Faina, the representative of Italy, president; Mr. Dop, representative of France, as vice-president, and Messrs. Müeller, representative of Germany, Miklos, the representative of Hungary, and Boyer, the representative of Canada, as the Executive Committee, the three latter being chairmen of the three subdivisions of the committee. The Institute is now established on a permanent basis, and I am sure will accomplish a great work for the agricultural interests of the world.

The results, however, will not be immediate. It will take some time for the whole organization to get into thorough working order. The information and statistics which must be collected will be found of varied character and form, and it will be necessary to study and work out these for proper co-ordination and compilation so that the results may be redistributed in the manner to be of the fullest advantage to the different countries adhering.

The permanent officers of the Institute, chosen and appointed by the General Assembly, and the members of the Permanent Committee, have showed great enthusiasm and capacity for the work, which to my mind assures the success of the Institute.

When I left Canada to attend the meeting of the General Assembly, I was doubtful as to the results possible of accomplishment by an organization of this kind. I now am convinced that Canada may and will reap a great benefit from the establishment of this International Institute of Agriculture, and that not only will participating in it be profitable to us, but it will be of inestimable value for us to share in an international movement of so great importance to agriculture, which is our mainstay and greatest source of wealth.

I might add that at the meeting of the General Assembly held at Rome, I was very delighted to have the co-operation of Sir Thomas Elliott, permanent head of the Department of Agriculture in Great Britain, and to find that he had formed a high opinion of the work of the Institute, and was anxious to have Great Britain take a leading part in the organization and management of it.

India, Australia and New Zealand are also participating, and it is hoped and expected that South Africa will shortly adhere.

Interesting reports on the proceedings of the meetings of the International Institute of Agriculture by Dr. J. G. Rutherford and the Honourable Mr. Boyer are annexed as appendices hereto. (See Appendices Nos. 17 and 18.)

During the past year Canada has participated in both the Franco-British Exhibition, held in London, England, and also in the Scottish National Exhibition, held in Edinburgh, Scotland, the former opening on May 14, 1908, and closing on October 31, 1908, and the latter opening on May 1, 1908, and closing on October 31, 1908.

A most creditable display of the Dominion's natural products and resources attracted much attention, and both exhibitions were marked with great success.

A report of these exhibitions by the Exhibition Commissioner will be found as an appendix hereto. (See Appendix No. 15.)

Since the closing of both the Franco-British and the Scottish National Exhibitions preparations are under way for Canada's participation in the Alaska-Yukon-Pacific Exhibition, which is to open in Seattle on June 1 next.

With deep regret I have to record the death of James Fletcher, LL.D., F.R.S.C., Dominion Entomologist and Botanist, on November 8, 1908. Doctor Fletcher's death is not only a loss to the department, which he served faithfully since the establishment of the Experimental Farms, but is one which will be felt throughout the Dominion.

I have also to report the death of an old and tried servant, Mr. A. C. Smith, M.D., M.A., C.M., who devoted years of his life to the care of the lepers at the leper lazaretto in Tracadie, N.B. Doctor Smith died on March 12, 1909.

I am pleased to be able to report that the prospects of the tobacco industry in Canada are bright and encouraging. Appended hereto is a report on the result of his labours submitted by the tobacco expert, Mr. F. Charlan, for the twelve months ended March 31, 1909. (See Appendix No. 16.)

II.—ARTS AND AGRICULTURE.

DAIRY AND COLD STORAGE COMMISSIONER'S BRANCH.

This branch of my department, which is administered by Mr. J. A. Ruddick as Dairy and Cold Storage Commissioner, includes the divisions of dairying, fruit, extension of markets and cold storage. Although there is a separate staff for each division, composed of officers with expert knowledge of the various lines of work, and these have assigned to them certain specific duties, there is, owing to the close relation in the work of the several divisions, much co-operation in carrying on the work as a whole, all of which promotes efficiency and economy.

The branch of the Dairy and Cold Storage Commissioner deals more particularly with the commercial side of the various industries which it touches, and is not equipped or provided with facilities for carrying on experimental work, although special arrangements are made from time to time, as may be required. The publications of the branch are written in popular form, and are not descriptive of experiments or investigations, as a rule.

THE ASSISTANT DAIRY COMMISSIONER.

The Assistant Dairy Commissioner, Mr. J. C. Chapais, devotes his time and energies largely to the French districts of the province of Quebec, and resides at St. Denis (en bas). Mr. Chapais attends a large number of meetings during the year, giving addresses on dairying, fruit growing and general agricultural topics. He has also assisted in the course of lectures at the St. Hyacinthe Dairy School, and visited, in company with the inspectors, a number of the cheese factory and creamery syndicates in the province of Quebec.

MEETINGS ADDRESSED.

A very important part of the work of the staff of the Dairy and Cold Storage Commissioner's branch, especially in the winter months, consists of attending the conventions of the various agricultural associations and special farmers' meetings which are held in different parts of the country.

The Commissioner attended and gave addresses at the annual conventions of the Dairymen's Association of Eastern Ontario, the Dairymen's Association of Western Ontario, the Nova Scotia Farmers' and Dairymen's Association, the Manitoba Dairymen's Association, the Ontario Fruit Growers' Association and other minor meetings in various parts of Canada.

Members of the staff, including Messrs. A. McNeill, G. H. Barr, C. F. Whitley, J. N. Lemieux, W. W. Brown, P. J. Carey, G. H. Vroom, Jos. Burgess, J. G. Bouchard, I. Trudel and Harvey Mitchell, have been almost constantly engaged for several months in attending special meetings called for the promotion of cow testing; for the improved handling of milk for cheesemaking; and for the encouragement of spraying and better care of orchards, &c.

Extensive use has been made of lantern views to illustrate the various subjects presented to these meetings.

ANNUAL REPORT OF THE BRANCH.

The Dairy and Cold Storage Commissioner has prepared the usual detailed report of the operations of his branch, which will be printed in a separate volume as an appendix to this report.

Further reference to this branch will be made under the head of the four divisions already mentioned.

THE DAIRY DIVISION.

THE SEASON OF 1908.

The season of 1908, like the preceding one, was marked by very dry weather and consequent shortage of pasture and scarcity of water in most of the principal dairying districts. The progressive farmers, however, profited by the lessons of 1907, and planted a larger acreage of fodder corn. The crop was an excellent one, and conse-

quently there has not been such a scarcity of feed during the past winter as there was in 1907-8.

The high prices obtained for cheese during the season was some compensation for the shortage in milk production. The price of cheese continues to be relatively higher than the price of butter, and the result is that a large amount of milk is being turned into cheese which would otherwise be sent to the creameries.

THE SHIPPING OF GREEN CHEESE.

British importers still complain of the shipments of cheese in an immature condition. The lower temperature at which cheese are now carried by rail and water, as compared with former years, has the effect of retarding the ripening process to some extent, and makes it all the more imperative that a reasonable time should be allowed before they are placed in the hands of consumers. The Dairy and Cold Storage Commissioner has used every means in his power to persuade the dairymen to put a stop to a practice which constitutes so serious a menace to the cheese trade.

NEW ZEALAND COMPETITION.

While the imports of cheese from Canada into Great Britain have shown some decrease in recent years, those from New Zealand have shown a large percentage increase. It is estimated that the imports from New Zealand for the season of 1908-9 will amount to about 16,000 tons, or probably 450,000 boxes, which is about twice the quantity received from that country in 1906-7.

CONVICTIONS FOR VIOLATIONS OF DOMINION DAIRY LAWS.

During the year under review, Chas. Dumais, Montreal, was fined for carrying on the illegal manufacture of a butter substitute resembling oleomargarine.

The Montreal Dairy Company, Montreal; Wm. Duckworth and J. Lyons, Toronto; and Samuel Duckworth, Grand Valley, Ontario, were fined for selling dairy butter branded as 'creamery.'

OFFICIAL REFEREE OF BUTTER AND CHEESE.

An officer of the Dairying Division was stationed at Montreal during the season of 1908 as Acting Official Referee of Butter and Cheese. It was his business to examine and report on any lots of cheese or butter over which there was a dispute as to quality between buyer and seller. During the whole season he was requested to examine only 115 lots of cheese and 40 lots of butter. In view of the small demand for the services of this officer, it does not seem necessary to assign any one to this duty in the future.

COW TESTING ASSOCIATIONS.

During the year 1908 there were 87 cow testing associations in operation in Canada, all of which have been organized by the Dairy Division. These associations

had 751 members, and 7,243 cows were entered to be recorded. In addition to these associations a large number of dairymen who are not in a position to join an association are keeping records individually. Many of them are weighing the milk from each cow daily. Record forms are supplied free of cost on application to the Dairy and Cold Storage Commissioner, Ottawa.

An extension of the work is contemplated for 1909, by supplying record forms to farmers who wish to record the quantity and value of feed consumed by each cow.

EXPERIMENTS IN THE CARE OF MILK FOR CHEESEMAKING.

A series of experiments, the results of which would appear to have a very important bearing on the handling of milk intended for cheesemaking, were conducted during the year.

PLANS AND SPECIFICATIONS FOR CHEESE FACTORIES AND CREAMERIES.

The Dairy and Cold Storage Commissioner furnishes, free of cost, complete plans and specifications for cheese factories and creameries.

DOMINION OF CANADA—EXPORTS OF DAIRY PRODUCE—HOME PRODUCTION.
CHEESE.

Year ended June 30.	Quantity.	Value.	To Great Britain.	To United States.	To France.	To Germany.	Other Foreign Countries.	B. N. A. Provinces.	British Indies.
	Lbs.	$	$	$	$	$	$	$	$
1868	6,141,570	620,543	548,574	68,784			891	1,594	340
1880	40,368,678	3,893,366	3,772,769	114,507			170	5,710	210
1890	94,260,187	9,372,212	9,349,731	6,425		370	2,154	12,777	755
1891	106,202,110	9,508,800	9,481,373	13,485			1,954	9,104	3,884
1892	118,270,052	11,652,412	11,593,690	39,558	2		2,124	12,942	4,091
1893	133,946,365	13,407,470	13,360,237	23,578			2,689	18,679	2,297
1894	154,977,480	15,488,191	15,439,198	9,552		173	3,036	21,948	14,284
1895	146,004,650	14,253,002	14,220,505	5,658		16	5,463	9,785	12,175
1896	164,689,123	13,956,571	13,924,672	10,359	299		4,861	7,509	8,871
1897	161,220,639	14,676,239	14,645,850	4,186	94	24	5,395	11,954	8,457
1898	196,703,323	17,572,763	17,522,681	11,604		1,128	6,889	12,784	14,577
1899	189,827,839	16,776,765	16,718,418	17,739			11,701	13,293	15,614
1900	185,984,430	19,856,324	19,812,670	4,836			8,774	16,651	13,393
1901	195,926,397	20,696,951	20,609,361	37,601	465	12	15,375	16,603	17,534
1902	200,946,401	19,686,281	19,620,233	12,038		1,179	14,133	20,100	18,602
1903	229,089,925	24,712,943	24,620,004	7,779		170	18,942	21,334	44,714
1904	233,980,716	24,181,566	24,099,004	5,386	44		23,810	21,754	34,568
1905	215,733,259	20,300,500	20,174,211	14,182	700	364	39,696	35,171	36,176
1906	215,834,543	24,433,169	24,300,908	16,082	7,203		52,455	30,992	25,529
Ended March 31.									
*1907	178,141,567	22,006,584	21,909,879	6,900		54	38,337	37,748	13,666
1908	189,710,463	22,887,237	22,763,736	17,732	10	3	42,431	35,792	27,533
1909	164,907,139	20,384,666	20,268,166	19,428	81		28,888	41,163	26,940

*9 months.

BUTTER.

Year ended June 30.	Quantity.	Value.	To Great Britain.	To United States.	To France.	To Germany.	Other Foreign Countries.	B. N. A. Provinces.	British Indies.
	Lls.	$	$	$	$	$	$	$	$
1868	10,649,733	1,698,042	534,707	1,015,702	.....	1,496	14,870	95,777	26,986
1880	18,535,362	3,058,069	2,756,064	111,158	.....	.....	24,710	163,290	2,647
1890	1,951,585	349,131	184,105	5,059	.....	.....	29,342	129,989	1,636
1891	3,768,101	602,175	440,060	10,054	.....	20,447	24,021	101,649	5,944
1892	5,736,696	1,056,058	877,455	6,038	.....	5,160	27,207	133,770	6,428
1893	7,036,013	1,296,814	1,118,614	7,539	.....	1,175	35,042	127,412	7,032
1894	5,534,621	1,095,588	936,422	6,048	1,125	.....	25,560	109,263	14,170
1895	3,650,258	697,476	536,797	5,365	.....	267	35,028	108,439	11,580
1896	5,889,241	1,052,089	893,053	2,729	.....	9,370	34,299	105,472	7,166
1897	11,453,351	2,089,173	1,912,389	6,233	.....	8,513	33,490	115,754	12,794
1898	11,253,787	2,046,686	1,915,550	3,738	.....	17,574	31,619	51,045	27,160
1899	20,130,195	3,700,873	3,526,007	3,984	.....	12,384	41,810	74,813	41,875
1900	25,259,737	5,122,156	4,947,000	5,044	.....	7,210	43,176	66,069	53,657
1901	16,335,528	3,295,663	3,142,353	5,839	.....	.....	39,675	44,586	62,810
1902	27,855,978	5,660,541	5,459,300	41,149	.....	101	36,109	47,066	71,816
1903	34,128,944	6,954,618	6,554,014	10,225	.....	13	198,381	69,017	112,968
1904	24,568,001	1,724,155	4,400,774	6,497	14	25,644	75,014	88,422	127,790
1905	31,764,303	5,930,379	5,568,999	70,580	14,440	.....	113,650	82,387	80,323
1906	34,031,525	7,075,539	6,802,003	33,965	4,155	.....	100,648	48,283	87,085
Ended March 31.									
*1907	18,078,508	4,011,609	3,805,925	3,539	.....	.....	86,316	56,516	59,313
1908	4,786,954	1,068,703	823,761	38,899	.....	.....	85,741	34,931	85,371
1909	6,326,355	1,521,436	1,273,484	18,246	.....	.....	79,784	54,552	95,370

* 9 months.

EXTENSION OF MARKETS DIVISION.

This division is charged with the supervision of the inspection services, which have been organized with a view of improving the handling of Canadian food products, of securing proper temperatures for the safe carriage of these goods, and that delays in transit may be reduced to a minimum.

This division also furnishes Canadian exporters with information relating to outside markets, and brings foreign buyers into direct communication with shippers on this side.

INSPECTORS IN CANADA.

During the season from May to November the following inspectors were employed:—

Six cargo inspectors at Montreal who watched the handling of perishable freight as it was unloaded from the cars and loaded into the steamships, tested the temperatures of the butter before it was placed in the cold storage chambers on the ships, and placed thermographs in the different chambers and holds.

Three iced-car inspectors at Montreal, who reported the condition of the refrigerator cars which arrived at the railway terminals with butter, took temperatures of the butter and saw that it was carefully handled and quickly distributed.

Three travelling inspectors, who looked after the iced cars in the provinces of Ontario and Quebec, tested the temperature of the butter at the various shipping stations, and investigated any complaints regarding the service.

During the winter months, one of the Montreal cargo inspectors was transferred to the port of Halifax to supervise the loading of apples, and to install thermographs in the fruit-carrying steamers.

INSPECTORS IN GREAT BRITAIN.

In Great Britain five cargo inspectors were employed during the whole year to watch the discharge and report on the condition of Canadian perishable products at the ports of Liverpool, Manchester, London, Bristol and Glasgow. These inspectors also interviewed, from time to time, the importers of cheese, butter, fruit, &c., on matters affecting the trade in these products.

BENEFICIAL RESULTS OF CARGO INSPECTION.

It is now about seven years since this system of cargo inspection at ports in Canada and in Great Britain was inaugurated. During that time very considerable improvement has been brought about in the method of handling perishable freight, both in loading into the steamers and discharging therefrom. The presence of an inspector, who is constantly on the lookout to detect improper handling, has gradually effected a very decided reform, not only as regards the appliances used by the stevedores, but also as regards the actual handling of the packages by the men themselves. Cheese, for instance, are handled much more carefully than under the old conditions, and even with the much weaker box now in use it is unusual to see more than ten per cent of breakage among boxes when unloaded at ports in Great Britain. This applies to shipments from Montreal only, as during the winter season, when Canadian cheese is shipped via the ports of St. John and Portland, the breakage is greatly increased, averaging from 25 to 45 per cent, including the boxes that are coopered by the steamship companies. At Portland, in particular, where cargo inspectors have never been employed, cheese, apples and other perishable goods are handled much more roughly than they are at the port of Montreal.

The presence of government cargo inspectors on the docks has been of especial benefit to fruit shippers, this being recognized not only by Canadian shippers but by United States shippers as well. Last season a member of one of the large fruit-exporting firms located in Lockport, N.Y., paid a visit to the port of Montreal, and after looking into the facilities there he stated that in view of the system of cargo inspection in vogue, and the fact that through the placing of thermographs in the chambers and holds with the fruit it was possible to obtain a record of the temperature throughout the voyage, their firm would in future route their export shipments via Montreal, although the haul would be considerably longer than to their nearest United States port.

It may not be out of place to close this reference to the improvement in transportation facilities by quoting a paragraph from a letter received from Messrs. Frank R. Hamilton & Company, Liverpool, dated January 19, 1909, which reads as follows:—

'On the whole the transportation conditions to-day are tremendously ahead of what they were some years ago, and in consequence better results are obtained when the goods are sold on the British markets.'

THE FRUIT DIVISION.

The work of this Division of the Dairy and Cold Storage Branch should not be confused with the Horticultural Division of the Experimental Farms Branch. The following paragraphs will indicate the nature of the work which is undertaken, and it will be observed that it is almost wholly commercial in character.

THE SEASON OF 1908.

The fruit season of 1908 presented little departure from normal in weather, market or crop conditions. Early and fall apples were much more plentiful relatively than winter. The hot weather of September and October caused a serious deterioration in condition, but for the whole season the quality was good; and in consequenece the number of prosecutions under the Inspection and Sale Act was less than in 1907. Prices were below the average at the beginning of the season, but were high towards the end.

FRUIT CROP REPORT.

This division continues to publish a Fruit Crop Report regularly at the end of each month during the fruit season. Every precaution is taken to secure accurate information from which to compile the report. Several thousand correspondents send in returns of the crop and crop prospects in the various fruit districts.

FRUIT INSPECTION.

The staff of fruit inspectors was increased during the year, and consisted of 9 permanent and 12 temporary inspectors.

STATISTICS OF FRUIT INSPECTION FOR THE YEAR ENDED MARCH 31, 1909.

Variety.	No. of lots inspected.	No. of packages in lots inspected.	No. of packages inspected.
Apples ..... Brls.	5,940	682,657	42,223
Apples ..... Boxes.	248	100,729	2,701
Pears	88	54,150	7,924
Peaches	91	140,976	16,005
Plums	54	16,505	1,474
Tomatoes	53	11,381	779
Early fruits	863	* 1,184,651	154,874
Total	7,337	2,191,049	225,980

* A crate of berries is counted as one package.

CONVICTIONS UNDER THE INSPECTION AND SALE ACT, SEASON 1908-09.

Ontario	45
Nova Scotia	31
Quebec	2
Total	78

The permanent fruit inspectors are employed during the period when there is no fruit to inspect, in addressing orchard and other fruit meetings, giving instruction in spraying, &c.

COLD STORAGE DIVISION.

CREAMERY COLD STORAGE BONUS.

The number of bonuses paid during the year was 18. The bonus ($100) is paid to owners of creameries who erect a cold storage in connection with their creameries according to plans furnished on application to the Dairy and Cold Storage Commissioner.

ICED BUTTER CAR SERVICES.

This service was extended and rearranged for the season of 1908. There were in all 62 routes in operation from May 11 to October 17, inclusive.

ICED CHEESE CARS.

Arrangements were again made with the railway companies to supply a limited number of iced cars on demand of shippers for the carriage of cheese in carloads, the Department of Agriculture to pay the icing charges to the extent of $5 per car. Nearly 1,200 cars were supplied under this agreement between July 6 and September 12.

ICED CARS FOR FRUIT.

A similar arrangement was made for the furnishing of iced cars for the carriage of fruit intended for export in cold storage.

COLD STORAGE CHAMBERS RESERVED FOR FRUIT ON STEAMSHIPS.

The Dairy and Cold Storage Commissioner was authorized to arrange for the reservation of cold storage chambers on four London steamers for the carriage of tender fruits at suitable temperatures, the Department of Agriculture to be responsible for any 'dead' space. The chambers were all filled and there has been no claim on the department.

THERMOGRAPHS.

The total number of thermograph records secured on steamers sailing from Montreal and Quebec was 444, including two to South Africa. On steamers sailing from

Halifax and Portland there were 33 records secured, including one to South Africa. There were also two records from steamers carrying apples from Vancouver to Australia, making a grand total of 479 for the year.

SUBSIDIES FOR COLD STORAGE WAREHOUSES.

Contracts were entered into during the year under the provisions of the Cold Storage Act for the erection of cold storage warehouses at the following places:—

Port Hawkesbury, N.S.

Woodstock, N.B.

Peterboro, Ont.

St. Mary's, Ont.

Trenton, Ont.

The warehouses have been completed at the first three named places. Several other applications for the subsidy have been received and are now under consideration.

SEED COMMISSIONER'S BRANCH.

An important feature of the work of the Seed Branch is to secure all possible information as to the suitability of the various crops for seeding purposes. This is done by the personal inspection work of the district officers located in the various provinces, and by testing samples of seed that are sent to the seed laboratories by farmers and others interested in crop production.

It will be remembered that in 1907 the crops in some parts of the prairie provinces were seriously injured by early fall frosts. Through the work of the Seed Branch officers in inspecting the infected areas and having large numbers of samples sent to the seed laboratory for germination test, the extent and seriousness of the injury was ascertained. The results of investigation into the seed supply of western Canada during the winter of 1908-9 furnished conclusive evidence that there was very little injury to the crop by frost, and that there would be an abundant supply of satisfactory seed. In a few local districts the vitality of oats and barley was somewhat impaired, but these areas were not extensive, and plenty of good seed could be secured near at hand.

THE QUALITY OF SEED GRAIN DISTRIBUTED BY THE GOVERNMENT.

In order to determine accurately the quality of the seed grain supplied to the needy farmers of Saskatchewan and Alberta in the spring of 1908, a purity analysis was made by the Seed Branch of the recleaned samples which were taken as the cars were being loaded out. Germination tests were also made of the recleaned oat samples. The results show that out of the 545 samples of wheat analysed, nearly all representing full car lots, 149, or 27 per cent, were entirely free from the noxious

weeds mentioned in section 6 of the Seed Control Act; 167 lots, or 31 per cent, while not entirely free from noxious seeds, contained not more than one per pound; 165 lots, or 30 per cent, contained more than one noxious weed seed per pound but not more than five; while 64 lots, or 12 per cent, contained more than five noxious weed seeds per pound. All the wheat distributed had to be selected from commercial grain, but after recleaning, 58 per cent of it was of such quality that it could have been sold as seedsmen's stock under the Seed Control Act.

Of the oats distributed, those purchased in western Canada were by far the most badly contaminated with weed seeds, which fact alone more than justifies the action of the government in seeking outside supplies of seed against the strong protest of interested parties. Of the 201 lots of western oats analysed, 8 per cent were free from noxious weeds, 8 per cent contained not more than one per pound, 32 per cent contained over one but not more than five per pound, while 52 per cent contained over five noxious weed seeds per pound. Of the 61 lots of Prince Edward Island oats examined, 77 per cent were entirely free from noxious weed seeds, and, with the exception of two cars, all the rest contained not more than one per pound. Of the 200 samples of recleaned British oats, 28 per cent were entirely free from noxious weed seeds, 42½ per cent contained not more than one per pound, while 29½ per cent contained more than one wild oat per pound but not more than five.

Of the 40 lots of barley analysed, one was entirely free from noxious weed seeds, 13 contained not more than one per pound, 22 more than one but not more than five per pound, and 4 more than five per pound.

The average germination of the western oats cleaned at Winnipeg elevators was 88 per cent, only seven cars going below 70 per cent. The cars cleaned at Brandon averaged 85 per cent, with four cars below 70 per cent. The six cars cleaned at Regina averaged 85 per cent, the lowest being 81 per cent. The 24 cars distributed from Calgary averaged 86 per cent, with only one below 70 per cent. All of the Ontario, Prince Edward Island and British oats gave strong germination, the average being about 90 per cent.

THE SEED TRADE OF 1909.

The clover seed crop of the seed-producing sections of Canada was considerably injured in 1908 by the attack of the clover seed midge. The crop was also rather uneven, which allowed considerable weed growth and affected the purity of the seed considerably. Inspection work in the spring of 1909 showed that a large proportion of the red clover seed put on the market was United States grown seed. This stock lacks somewhat in colour compared with the best Ontario grown seed, and in some cases it is scarcely as plump. The chief weed seed impurities in red clover, which is being offered this year, are ragweed and buckhorn. Ragweed is spreading rapidly in the southwestern portion of Ontario. On the whole, the supply of alsike seed is not as pure as that of red clover. There seems to be great difficulty in procuring alsike seed free from the seeds of night-flowering catchfly, which is spreading rapidly in the seed-producing areas.

A feature of the seed trade which is receiving special attention this spring, is the distribution for seed of commercial oats and wheat badly contaminated with wild oats and other weed seeds. This practice is quite prevalent in northern Ontario, Quebec and the St. John river valley. Many of the weed seeds contained in this grain are unknown to the farmers, and their noxious nature is not recognized. Every effort will be made by the seed inspectors this season to suppress the evils of this trade as far as possible.

Reports from the seed inspectors indicate that for the most part the seed dealers of Canada are desirous of complying with the provisions of the Seed Control Act and selling as pure seed as they can secure. This is evidenced by the fact that during the past year 109 reference collections of weed seeds were sold to the seed merchants. This makes a total of 583 collections distributed from this department.

FIELD CROP COMPETITIONS AND SEED FAIRS.

During the past season the work of conducting competitions in standing fields of seed grain and seed fairs in co-operation with the provincial authorities has been continued and enlarged upon. There were 22 field grain competitions held in Alberta, 51 in Saskatchewan, 46 in Ontario, 18 in Quebec and 3 in Prince Edward Island. Wherever carried on, these competitions have been very popular, not only because of their educational influence but also for their commercial value. They have done much to stimulate interest in the production of pure seed grain, and have also provided information as to where high-class seed grain can be procured.

During the winter and spring months seed fairs were held in Saskatchewan and Alberta and in the eastern provinces. In the west the seed fair is one of the most popular institutions among the farmers. There were 42 held in Saskatchewan and 22 in Alberta. The exhibits at these fairs represented over 167,000 bushels of wheat, oats and barley that was commendable for seed purposes. In Saskatchewan the exhibits represented 107,800 bushels of cereals, an average of 2,566 bushels for each seed fair. The average amount of wheat represented by the exhibits at Saskatchewan seed fairs was 1,277; oats, 1,085, and barley, 203 bushels. The 23 fairs in Alberta represented 59,210 bushels, an averarge of 2,575 for each seed fair. The average for wheat was 708; oats, 1,518, and barley, 350 bushels. In the west the fairs were all completed by the first of February so as to allow more time for the exchange of seeds. In Ontario, Quebec and the maritime provinces they are generally held somewhat later.

ASSISTANCE TO THE CANADIAN SEED GROWERS' ASSOCIATION AND GENERAL EDUCATIONAL WORK.

The usual assistance to the Canadian Seed Growers' Association has been given by way of printing the annual report, inspecting the seed plots of the members of the association, and providing a grant for its general expenses. Much of the time of the Seed Branch district officers is devoted to general educational work, generally in co-operation with the provincial departments of agriculture. At the meetings which are conducted, special attention is given to the question of seed production in its various phases, including the identification and extermination of weeds. Educational meetings are held in connection with the seed fairs. Lectures are given on questions relating to grain production, and seed grain judging classes are held.

PUBLICATIONS.

Up to the beginning of March, 1909, 18,600 copies of the bulletin, 'Farm Weeds of Canada' were distributed. Of these, 14,974 were sent to general educational institutions, including rural schools. The balance was sent to agricultural colleges, public libraries, farmers' institute lecturers and agricultural organizations. There are still about 5,000 copies to be distributed, and these will all be taken by schools yet to be supplied.

There has been a constant demand for this bulletin from individuals, and in order to meet it a new and enlarged edition is being prepared. This edition will be held for sale at nominal cost by the Superintendent of Stationery, and will be available to farmers and others.

During the year the following publications have been issued:—

A circular dealing with the production of clover seed, distributed to the farmers in the seed-producing areas.

Summary of Results of Field Crop Competitions in Ontario, Quebec and Prince Edward Island; 40,000 copies English, 10,000 French.

Summary of Results of Field Competitions in Saskatchewan and Alberta; 20,000 copies.

Summary of Particulars regarding Seed Exhibits at Seed Fairs in Saskatchewan and Alberta; 20,000 copies.

These bulletins contain valuable information regarding the production and supply of high-class seed grain.

OTTAWA SEED LABORATORY.

There has been a general increase in the number of samples analyzed for purity. The germination tests were not so numerous as in the previous season, during which a large number of samples of frosted grain were received for test from the prairie provinces. The following tabulated forms give the kinds and numbers of samples received from farmers and seed merchants, and tested for germination or purity at the Ottawa seed laboratory, from April 1, 1908, to March 31, 1909:—

GRAIN TESTED FOR GERMINATION.

Kind of Seed.	Ontario.	Quebec.	Nova Scotia.	P. E. Island.	Manitoba.	Saskatchewan.	Alberta.	United States.	Total.
Wheat	1	26	...	....	22	326	25	.....	400
Oats	23	163	1	8	26	362	55	1	639
Barley	5	8	.....	..	10	99	17	.....	139
Corn	29	19	.....	....	....	...	...	...	48
Buckwheat	.....	2	.....	.....	..	.....	.....	....	2
Oats and barley	.....	1	.....	.....	.....	...	.....	.....	1
	58	219	1	8	58	787	97	1	1,229
Oats in connection with Government seed grain distribution									477
									1,706

GRAIN TESTED FOR PURITY.

Kind of Seed.	Ontario.	Quebec.	British Columbia.	Manitoba.	Saskatchewan.	Total.
Wheat	1	14	.....	2	8	25
Oats	4	62	1	1	6	74
Barley	1	4	.....	.....	.....	5
Buckwheat	....	2	.....	.....	....	2
Total	6	82	1	3	14	106

CLOVER SEED AND TIMOTHY TESTED FOR GERMINATION.

Kind of Seed.	Ontario.	Quebec.	New Brunswick.	P. E. Island.	Manitoba.	Saskatchewan.	Alberta.	United States.	Total.
Red Clover	30	27	.....	16	.....	....	....	4	77
Alsike	16	6	.....	10	.....	....	....	....	32
Timothy	15	22	1	18	1	3	1	6	67
Alfalfa	14	1	....	....	.....	.....	.....	.....	15
White Clover	1	2	....	1	.....	.....	.....	.....	4
Total	76	58	1	45	1	3	1	10	195

CLOVER SEED AND TIMOTHY TESTED FOR PURITY.

Kind of Seed.	Ontario.	Quebec.	New Brunswick.	P. E. Island.	British Columbia.	Manitoba.	Saskatchewan.	United States.	Total.
Red Clover	417	218	6	22	3	.....	.....	6	672
Alsike	302	132	3	14	1	.....	2	....	454
Timothy	235	224	7	27	2	2	3	13	513
Alfalfa	55	3	.....	....	.....	.....	....	....	58
White Clover	12	52	.....	2	.	.....	.....	.....	66
Mixtures	14	4	....	.....	....	.....	.....	.....	18
Total	1,035	633	16	65	6	2	5	19	1,781

GRASSES TESTED FOR GERMINATION.

Kind of Seed.	Ontario.	Quebec.	British Columbia.	Manitoba.	Saskatchewan.	Alberta.	United States.	Total.
Brome Grass	1				3			4
Blue Grasses	6	1	1			1	3	12
Red Top	9						1	10
Fescues	10							10
Western Rye Grass				2	6			8
English "	2		1					3
Italian "			1					1
Orchard Grass	2		2					4
Crested Dogstail	3							3
Oat Grass	1							1
Millet			1					1
Total	34	1	6	2	9	1	4	57

GRASSES TESTED FOR PURITY.

Kind of Seed.	Ontario.	British Columbia.	United States.	Total.
Blue Grasses	7	1		8
Red Top	3			3
Fescues	6			6
English Rye Grass	1	1		2
Italian "		1	4	5
Orchard Grass	1	2		3
Crested Dogstail	2			2
Millet			3	10
Lawn Grass	5			5
Total	32	5	7	44

OTHER SAMPLES TESTED FOR GERMINATION.

Kind of Seed.	Ontario.	Quebec.	British Columbia.	Manitoba.	Saskatchewan.	Alberta.	Total.
Roots	55	5		4			64
Vegetables	533	55	4	67	2		661
Flower seeds		1		5			6
Flax seed	11				24	2	37
Rape	1						1
Chicory	4						4
Tobacco	47						47
Herbs	18						18
Total	669	61	4	76	26	2	838

CALGARY SEED LABORATORY.

Considerable time has been devoted by the staff of the Calgary seed laboratory in collecting and mounting specimens of plants common to the prairie provinces, and also collecting weed seeds for the reference collection. Seventy-five specimens of plants were collected and 125 new varieties of weed seeds added to the collection, which now totals 500. The germination work was considerably lighter than during the previous season, owing to there being very little damage to the crop by frost, but there was a considerable increase in the number of samples received for purity test, which indicates that the farmers of the west are beginning to realize more fully the importance of having a proper knowledge of the weed seed impurities which are found in clover and grass seed and seed grain. Fifty-one different weed seeds were found in the samples analysed for purity. The following tables show the number and kinds of samples tested for purity and germination at the Calgary seed laboratory from April 1, 1908, to March 31, 1909.

SAMPLES TESTED FOR PURITY.

Kind of Seed.	Alberta.	Saskatchewan.	British Columbia.	Manitoba.	Total.
Oats	43	9	.....	.....	52
Wheat	9	1	.....	1	11
Barley	7	.....	.....	.....	7
Flax	1	.....	.....	.....	1
Timothy	22	.....	12	.....	34
Mammoth red clover	.....	.....	9	.....	9
Red clover	1	.....	11	.....	12
Alsike	.....	.....	8	.....	8
White clover	2	.....	3	.....	5
Alfalfa	4	.....	3	.....	7
Red Top	.....	.....	1	.....	1
Perennial rye grass	.....	.....	1	.....	1
Italian "	.....	.....	1	.....	1
Western "	2	.....	.....	.....	2
Kentucky blue grass	1	.....	.....	.....	1
Parsnip	1	.....	.....	.....	1
Total	93	10	49	1	153

SAMPLES TESTED FOR GERMINATION.

Kind of Seed.	Alberta.	Saskatchewan.	British Columbia.	Manitoba.	Total.
Oats	633	92	3	4	732
Wheat	222	15	1	1	239
Barley	117	7	.....	.....	124
Flax	9	1	.....	.....	10
Rye	8	.....	1	.....	9
Speltz	3	.....	.....	.....	3
Peas	3	.....	.....	.....	3
Grasses and clovers	84	.....	35	.....	119
Roots and vegetables	165	.....	7	.....	172
Total	1,244	115	47	5	1,411

INVESTIGATION WORK.

With a view to determining the extent to which feed stuffs which are sold in Canada are contaminated with vital weed seeds, several samples have been collected by the seed inspectors and analysed for weed seed contents at the Ottawa seed laboratory. Although only a comparatively few samples have so far been analysed, the results clearly indicate that there is great danger of weed contamination through the use of feeding stuffs, as the grinding is not sufficiently fine to destroy the vitality of even the larger weed seed. Twenty-four samples of bran were analysed. Nine of these were free from weed seeds while the other fifteen samples averaged 23 per pound, one going as high as 83 per pound. The weed seeds most commonly found were wild oats, ball mustard, wild buckwheat, ragweed, stinkweed, chess and lamb's-quarters. Two samples of shorts were analysed. One was free from weed seeds and the other contained darnel and wild buckwheat at the rate of 11 per pound. Six samples of ground feed were analysed and only one was free from weed seeds, the average being 200 per pound. One sample of chopped barley contained 1,021 weed seeds per pound. The seeds found in this sample were Canada thistle, night-flowering catchfly, false flax, perennial sow thistle and several other species. The three samples of rolled oats analysed were all badly contaminated, the average being 1,785 weed seeds per pound. Among the most common seeds found in the rolled oats were wild oats, Canada thistle, catchfly, perennial sow thistle and bladder campion.

VITALITY OF SEED CORN, FIELD ROOTS AND GARDEN SEEDS.

The work of investigation into the vitality of the seed corn, field roots and garden seeds that are being sold throughout the Dominion has been continued and enlarged upon. The following tabulated statement shows the kinds and number of the seeds tested for germination, together with the average percentage vitality, the standard for good seed, the number of samples which came up to the standard, and the number below two-thirds the standard:—

RESULTS OF INVESTIGATION OF SEED CORN, FIELD ROOTS AND GARDEN SEEDS.

Kinds of Seeds.	Number of Samples Tested.	Percentage of Germination.				Number of Samples with Germination.	
		Maximum	Minimum.	Average.	Standard for good seed.	Up to standard for good seed.	Below ⅔ standard for good seed.
Asparagus	1	80	80	80	....	.....	.....
Beans	20	100	2	77	90	10	4
Beets	60	179	26	133	160	13	11
Cabbage	35	99	16	84	93	16	4
Carrot	55	89	0	62	80	11	13
Cauliflower	12	100	62	88	90	7	.....
Celery	13	93	47	72	60	10	.....
Chicory	1	76	76	76	.....	.....	.....
Citron	5	93	37	75	90	1	1
Corn (sweet)	39	98	24	72	95	4	12
Corn (field)	29	99	47	82	95	7	4
Cress	2	94	83	89	.....	.....	.....
Cucumber	44	100	1	91	90	36	1
Egg plant	1	50	50	50	....	.....	.....
Kale	3	96	92	94	.....	.....	.....
Kohl Rabi	1	34	34	34	.....	.....	.....
Leek	2	58	51	55	.....	.....	.....
Lettuce	29	100	5	88	90	25	3
Mangels	30	243	71	144	160	12	6
Muskmelon	6	98	88	94	90	4	.....
Mustard (white)	2	98	96	97	.....	.....	.....
Onion	44	95	0	63	90	7	16
Parsley	7	89	24	54	65	3	3
Parsnips	24	64	1	49	65	.....	5
Peas	19	96	50	78	97	.....	5
Pepper	7	69	13	35	.....	.....	.....
Pumpkin	11	100	25	81	90	5	1
Radish	41	100	25	86	95	14	4
Rape	7	100	94	98	95	6	.....
Rhubarb	4	85	70	79	.....	.....	.....
Sage	5	92	51	65	.....	.....	.....
Salsify	6	88	4	50	85	1	3
Savory	3	57	28	44	.....	.....	.....
Spinach	14	94	12	50	90	1	12
Squash	21	98	20	73	90	6	5
Sunflower	1	98	98	98	.....	.....	.....
Thyme	2	60	45	53	.....	.....	.....
Tobacco	1	39	39	39	.....	.....	.....
Tomato	19	98	62	88	90	12	.....
Turnip	75	100	0	89	95	47	6
Watermelon	12	95	0	70	90	3	2
Total	713	.....	.....	.....	.....	261	121

LIVE STOCK BRANCH.

The work of this branch during the year, while characterized by no unusual or striking features, has been carried on in an exceedingly satisfactory manner, and in some lines has shown marked development.

The task of completing the organization of the National Records, which demanded so much time and attention in the preceding year, especially in the province of Quebec, has also received considerable attention during the past season. While all the preliminary difficulties had been overcome, it was necessary to continue the work of the commission appointed for the purpose of inspecting such French-Canadian

horses as were offered by their owners for registration in the new Stud Book established for the breed. During the greater part of the summer and fall, the commission was busily engaged, and although every effort was made to complete the work at the time previously agreed upon, namely, December 31, 1908, it was found impossible to visit all parts of the province before that date. The counties of Gaspé and Bonaventure, as also Isle aux Coudres, in which there are said to be a considerable number of typical French-Canadian horses, were therefore left to be dealt with during the coming summer. A few horses in the province of Ontario and some scattered representatives of the breed in Manitoba and Alberta, will also have to be visited and examined. When these have been seen, there will, I think, remain outside of the record but few horses properly entitled to registration therein.

That the endeavour to re-establish the old French-Canadian breed of horses on sound and legitimate lines was worthy of our best efforts was, I think, demonstrated beyond question at the exhibition held at St. Johns, Quebec, in September last. On this occasion there were brought forward in competition for special prizes offered by my department in co-operation with the French-Canadian Horse Breeders' Association, 46 stallions and 76 mares registered in the new record. These animals were, almost without exception, of very superior quality, and the showing made was such as to impress most favourably a number of the best judges of light horses in the Dominion, who considered themselves fortunate in being present to see it. There is, of course, an element of doubt as to whether it will be possible to re-establish the old breed completely, with the comparatively small number of typical registered stallions available, especially when the large area over which the mares are dispersed is taken into consideration. Whether it will be advisable to depend altogether upon these horses, or to introduce and register carefully selected male individuals of other light breeds, is a question which will have to be decided by the association in the near future. Meanwhile, only those conforming to the established standard as regards size, type and breeding have been considered eligible for registration.

No new records have been opened during the year, but there is every probability that in the coming season a number of young associations will apply for incorporation.

Action of this kind, on the part of those interested in breeds for which no records now exist, has received an impetus from the new customs regulations, which, after being fully discussed at the meeting of the National Live Stock Association held here in February, 1908, were later formulated by the National Record Board, and on my recommendation adopted by the Customs Department in June of last year. Under this new ruling free customs entry will only be granted to animals imported for the improvement of stock upon the production by the importer of a certificate of registration in the Canadian National Records, or, in the case of Holstein-Friesian cattle, a similar certificate of registration signed by the secretary of the Holstein-Friesian Association of Canada.

In the case of animals for which no record exists in Canada, free entry will be granted on the presentation of an import certificate signed by the accountant of the

National Records, such certificate to be issued by him on presentation by the importer of a certificate in a recognized record in the country of origin of the breed.

From these regulations it will be seen that no provision is made for the free admission of animals coming from countries other than that in which the breed to which they belong originated, unless there exists a Canadian record in which they are eligible for entry.

This affects particularly a number of European breeds of different species for which records exist in the United States but not in Canada, and as the only way in which the difficulty can be overcome without a very radical change is by the formation of Canadian records for such breeds, preliminary steps with this end in view are being taken by those interested in their formation.

While on the subject of national records, I may say that I have succeeded in making new and much more favourable arrangements for the transportation at reduced rates of pure bred stock for breeding purposes. This concession is now granted only when the shipper can present either a certificate of registration in the Canadian National Records, or, in the case of Holstein cattle, a certificate of registration in the Canadian record for that breed.

The whole procedure is thus greatly simplified both for the shipper and the railway companies. The latter, however, have of their own accord granted a special concession to importers of pure bred stock when accompanied by an import certificate issued by the National Records, such animals being given the reduced rate from the port of entry to destination.

The work of supervising and testing such pure bred dairy cows as are entered for the record of performance has grown greatly in popular favour. The demands of breeders have, in fact, increased to such an extent as to require the engagement of a third inspector in Ontario and Quebec alone. Cows are also under supervision in other provinces, but as the number of animals entered is not in any of these cases great, the work is done by men who are fully qualified to perform it properly, but who do not devote their whole time to the service of the department. This investigation of the milking qualities of the most promising representatives of the different dairy breeds is, not only, in itself, of great economic importance, but is also exceedingly valuable as an educational factor. The benefits derived from it do not end in the simple indication of any particular breed or special individual as being possessed of exceptional milking qualities. The natural desire to have each contestant make the best possible showing tends to bring about thoughtful and, under the circumstances, careful and conscientious experimentation with different feeds, and at the same time emphasizes the importance of special care and kindness in the treatment of milking cows. The inspectors report that the conditions under which the work is carried on and the influences which arise from it, are exercising a marked beneficial effect upon all those interested, especially on the rising generation.

As usual the branch has furnished many speakers for institute meetings and instructors for live stock judging classes, as also judges for many fairs in all the

provinces except Manitoba and Ontario, where this class of work is managed almost entirely by the provincial authorities.

The Live Stock Commissioner and his various agents always co-operate willingly when requested with the various provincial departments of agriculture.

Some difficulty have been encountered by the Maritime Stock Breeders' Association in carrying on the Amherst Winter Fair, an institution which, originally established under the auspices of my department, has for a considerable time been of the greatest possible value to the live stock industry of the three eastern provinces, I found it necessary, early in the year, to make a new arrangement whereby the association will receive rather more direct financial assistance than it previously did.

Carrying out the policy of safeguarding, as far as possible, the interests of the commercial live stock breeder, rather than those of the producer of pure bred stock, who, as a rule, is well able to take care of himself, the Live Stock Commissioner has, during the past year, devoted much attention to the question of transportation and marketing, with particular reference to the export trade in western cattle. A special report on this subject is now in the press and will very shortly be available for circulation.

Our present methods of handling commercial live stock are undoubtedly far from perfect, and it is possible that, after the subject has been fully investigated, I may find it necessary to ask for special legislation, with the object of bringing about an improvement in existing conditions.

The experiments conducted by the Health of Animals Branch in connection with the malady locally known as Pictou cattle disease have now been concluded. It has been shown that sheep can be safely and profitably used in eradicating ragwort, the weed responsible for the disease in question, and efforts are therefore being made by the Live Stock Commissioner to encourage and stimulate the sheep industry in those portions of Nova Scotia and Prince Edward Island where this weed has obtained a foothold, the country being remarkably well adapted for this class of live stock. A considerable number of pure bred rams were last year purchased by the Live Stock Commissioner, and after being pastured during the summer on the Experiment Station at Antigonish, were sold in the fall at four different points in the weed infested areas. The prices obtained were fairly satisfactory, and it is my intention to still further encourage by similar methods the production of sheep in these districts, where they will not only serve a useful purpose in destroying the weed, but will also constitute an important and constantly increasing source of revenue to the farmer.

During the year several valuable publications on live stock subjects have been issued. Among these the most noteworthy is an exhaustive treatise on sheep husbandry in Canada. This bulletin, which was compiled by Mr. J. B. Spencer, B.S.A., has been highly appreciated by the public, and will undoubtedly prove of great value to those interested in sheep raising. A similar bulletin dealing with beef production is now in course of preparation and will shortly be published.

The combination under one head of the Health of Animals and Live Stock Branches continues to work very satisfactorily, as it has not only brought about a union of forces which formerly, almost unavoidably, overlapped in several directions, but has also effected a considerable saving in salaries and other expenses.

EXPERIMENTAL FARMS BRANCH.

The experiments and investigations conducted in all the divisions of this work have a more or less direct practical bearing on farming experience in this country. Their influence is far reaching and helpful in every direction. Gratifying testimony as to their value and usefulness has come in from farmers in every part of the Dominion, and those who have participated in the benefits conferred by these institutions have manifested increased interest in the work.

Experiments in the cultivation of the land in different parts of the Dominion and its treatment to bring about conditions favourable to plant growth with the object of increasing the crop output have all been most helpful.

The co-operative experiments with farmers for the general improvement of farm crops have been continued. These trial plots engage the attention of about forty thousand farmers. The grain distributed is of the choicest and purest sorts obtainable, true to name and thoroughly clean. With a large influx of new settlers every year the helpful influence of such work is difficult to estimate. In this manner the best and most productive sorts find their way to the remotest corners of the Dominion, producing bountiful returns. The early maturing varieties of cereals which have recently been produced at Ottawa in considerable numbers will, no doubt, extend the wheat growing area in Canada considerably. This field of labour is full of promise.

In the Division of Entomology and Botany a great loss has been sustained during the past year in the death of Dr. James Fletcher, Entomologist and Botanist to the Dominion Experimental Farms. Dr. Fletcher's decease was sudden and unexpected. He had held office in connection with the Experimental Farms since their organization in 1887, and in the twenty-one annual reports of the work done in his division a large amount of information has been given of great value to the farmers of Canada. He studied the life-histories of the many insect pests which prey on the crops of the Canadian farmer and cause him much loss. He also observed closely the life-history and habits of the parasitic species which feed on and destroy these enemies of the farmer. He reported also on the most practical remedies to be used for the destruction of injurious insects. As Botanist he studied the value of different species of grasses and other fodder plants suitable to Canadian conditions, as well as many other important practical subjects. He also devoted much attention to the study of weeds and the best methods of treatment for their eradication.

AGRICULTURAL AND LIVE STOCK DIVISION.

Soil cultivation and crop growing receive much attention. An area of about 200 acres is devoted to the work of studying methods of cultivation, the value of different crops for live stock farming and rotations.

A great variety of grains and crops have been grown, and a number of rotations tested. Results so far would seem to indicate corn, roots, clover, timothy and oats as the great staple crops on which the farmer may count most certainly for an abundant supply of the best kinds of feed for the various classes of stock kept on the average farm.

Experiments to determine the best methods of cultivation all point to the great importance of the most thorough tillage for all crops. Among the crops mentioned, corn is one of those demanding the greatest attention to cultivation and the most intelligent preparation of the soil. This plant is evidently destined to become one of the most important in Canada, or at least in those parts of the Dominion where dairying and beef production are important industries. This on account not of the grain produced, but rather by reason of the abundant yield of forage capable of being easily preserved in the form of ensilage.

A study of the returns from corn seem to indicate the following conditions and preparation as the most likely to give satisfactory results. Good drainage is an absolute necessity. The kind of land is of minor consequence, but a warm soil seems to be preferred.

A clover meadow, an old pasture or a sod field are the most suitable. Stubble land, potato or root land are not likely to give such good results.

Barnyard manure should be applied at the rate of from 12 to 20 tons per acre. It should be so applied as to remain near the surface when the land is ready for seeding.

If spring ploughing is practiced, as had better be done on sandy soils, then a rather shallow furrow (4 inches) should be turned and the manure ploughed in. If ploughing is done in the fall, as is probably better where planting on clayey land, then a deeper furrow (6 or 8 inches) should be turned and the manure had better be worked in on the surface the following spring.

A good solid seed bed by means of disk harrow, roller and smoothing harrow.

The corn should be sown in rows 42 inches apart or in hills 36 inches apart each way.

The varieties most suitable would seem to be Longfellow and similar flints, White Cap, Yellow Dent and Leaming, and for some of the more southerly parts, Mammoth Cuban and similar large sorts might be advantageously used.

Roots also seem to do best on clover sod or pasture. In the case of this crop, however, early fall planting, thorough fall working and a second cross ploughing or ridging up seem to be advisable. Barnyard manure is necessary, 15 to 30 tons per acre.

Sow in rows or ridges 30 inches apart. Roll ridges before sowing seed, also after sowing if land is very light or season very dry.

Oats do best when sown on last year's corn or root land that has been ploughed with a very shallow furrow. Sow clover 10 lbs. and timothy 10 or 12 lbs. per acre.

Most thorough cultivation has proven over and over again to be profitable cultivation.

In applying manure a careful even application is necessary to get best results. The manure spreader is for this reason proving to be a very valuable implement.

New horse stables, remodelled cow barns and a small piggery, all floored in cement, are proving that this material is superior to any other flooring so far tried for the various classes of stock mentioned.

Various systems of ventilation have been tried, and are still being experimented with. Results so far seem to indicate most satisfactory air conditions when the pure air enters at or near the floor and the foul air leaves at the ceiling.

Another peculiarity of the new buildings is the abundance of light. This feature is proving of very great value in the maintenance of the health and comfort of the different classes of animals.

With live stock, the same lines of work in breeding and experimental feeding are being continued as in recent years.

One notable part of the work has been the results secured in connection with the French-Canadian cow. A small herd of this breed bought here and there from various breeders in the province of Quebec has given very satisfactory returns in the way of butter and milk produced. They have been particularly remarkable for the low cost of production, comparing most favourably with the cost of production in the herds of the other breeds of cattle kept on the Experimental Farm.

The result of work extending over six years show that to produce 100 lbs. of milk it costs for the feed in the case of the French-Canadians, 57·64 cents; Shorthorns, 68·47 cents; Guernseys, 63·47 cents, and Ayrshires, 52·36 cents. As indicated, the French-Canadians stand second in the list for cost of production of 100 lbs. of milk, the Ayrshires being first. In estimating the cost of one pound of butter, however, the French-Canadians surpass all the others, standing first, as indicated by the following figures: To produce one pound of butter cost with French-Canadians, 10·84 cents; with Guernseys, 10·97 cents; with Ayrshires, 11·38 cents, and with Shorthorns, 14·54 cents.

The individual yearly records of some of the cows make a very good showing, as will be seen on noting the following:—

Fortune d'Oka.—8,734 lbs. milk, testing 4·66 per cent fat, equal to 468·60 lbs. butter in one year.

Zamora.—7,694 lbs. milk, testing 4·96 per cent fat, equal to 448·80 lbs. butter in one year.

Exilée.—8,628 lbs. milk, testing 4·10 per cent fat, equal to 416·90 lbs. butter in one year.

Inoquette.—6,479 lbs. milk, testing 4·1 per cent fat, equal to 316·65 lbs. butter in one year.

Inoquette.—6,479 lbs. milk, testing 4· per cent fat, equal to 316·65 lbs. butter in one year. This was her record with her first calf at 2½ years of age.

Duchesse 2eme.—5,749 lbs. milk, testing 4·4 per cent fat, equal to 303·64 lbs. butter in one year, with her first calf.

The small herd of seven cows, two of them heifers, produced last year an average of $77.48 worth of butter, the butter valued at 24 cents per pound.

HORTICULTURAL DIVISION.

The growing season of 1908 was one of the driest, if not the driest, in the history of the Experimental Farm. From the latter part of June until late in October there was an insufficiency of rain for most horticultural crops, and at times the drought was extreme. The crops which suffered most were the strawberry, raspberry and potato, which were much reduced. The deeper rooted tree fruits did not suffer so much. There was a large crop of apples in 1908, which, however, matured earlier and did not keep as well as usual owing to the dry season, which induced early maturity. One of the most interesting features in the Horticultural Division in 1908 was the large number of seedling apples which fruited, there being over 400 kinds fruiting among those which originated at the Experimental Farm. Many of these seedlings are quite promising, among the best of those which fruited being seedlings of the Wealthy, Swayzie, Pomme Grise and Langford Beauty. Several of these have been named, and are being propagated for further test. What is being sought for especially among these seedlings is a late keeping winter apple of handsome appearance and very good quality, which will succeed over a wide area in the colder parts of the Provinces of Ontario and Quebec.

As a record is kept of the yields of each tree in the orchards at the Experimental Farm, it is possible to find out what the average yield of each tree has been. This record has been worked up from time to time in connection with some of the apple trees, and it has been found that certain trees produce more than twice as much as others of the same variety planted at the same time. After computing the crop for 1908, it was found that these differences are still shown in an average extending over ten and eleven years. Trees have been propagated to learn whether these characters are constant when the scions are taken from them and other trees are grown.

There is a large area of land in Canada where the European plums will not succeed, but where the native wild plums do well. As these, on the whole, are not of very good quality, the endeavour is being made to improve them by growing seedlings from the best. Some promising plums have already been obtained in this way, and in 1908 a number of new ones fruited.

Seedlings are also being raised of pears, cherries and strawberries. Some fine strawberry seedlings fruited in 1908.

The fruit trees were kept well sprayed in 1908, and several new fungicides and insecticides were used for experimental purposes.

Experiments with vegetables were continued last season, the newer varieties being compared with the old ones and notes taken on the relative merits of each. Selecting to obtain earlier strains of tomatoes, beans, peas and corn was continued in 1908. In an experiment with tomatoes now extending over several years it has been found that selecting from the individual plant appears to have given a more fixed early strain than selecting each year from the earliest ripe fruits of any plant without regard to its ancestry.

The forest belts at the Experimental Farm, which are included in the Horticultural Division, still continue to prove useful in furnishing material for studying the relative growth of the different trees under various conditions, and the effect one species of tree has upon the other. Measurements of average trees were again made in 1908.

The collection of trees, shrubs and herbaceous perennials in the Arboretum and Botanic Garden continues to grow, and as the individual specimens increase in size from year to year the value and attractiveness of the collection increases also. During 1908 a list of the herbaceous perennials was completed and published, and has been very favourably received by horticulturists. More than 2,000 species and varieties are given, with notes on their hardiness, time of blooming, colour of flowers and height of the plants. The most attractive plants are starred. Lists of the best twenty-five, fifty and one hundred herbaceous perennials are also given.

The correspondence of the Horticultural Division is steadily increasing, and is an evidence of the continued interest in the horticultural work being done at the Central Experimental Farm.

During the year the Horticulturist has attended a number of important meetings and rendered what assistance he could to the farmers and fruit growers with whom he came in contact.

CHEMISTRY DIVISION.

The work of the Chemical Division of the Experimental Farm system may be said to be of a two-fold character: to furnish the farmer with information and advice of a chemical nature regarding agricultural matters, and thus enable him to carry on his everyday work with greater economy and efficiency; and, secondly, to undertake such investigations and researches by the aid of chemistry as may tend to solve the problems that we find to-day alike in general farming as in the various specialized branches of agriculture.

The direct assistance to farmers consists very largely in replying to questions. Inquiries are sent in in ever-increasing numbers from all parts of the Dominion, so that attending to the correspondence forms an important part of the work of the

chemist. It further comprises the analysis or examination of samples of an agricultural character—soils, cattle foods, insecticides, well waters, &c., forwarded by farmers.

Some of the more important researches relating to Canadian agriculture which have received attention during the past year, may be briefly referred to as follows:—

SOILS.

The most important series of soils under investigation consisted of a number of samples of surface and subsoils collected by the chemist while on an agricultural tour in 1906 in the valleys of the Upper Columbia and Kootenay rivers, B.C., districts generally held to be within the semi-arid belt. The results of this examination have clearly indicated the general character of these soils, which were found for the most part to compare favourably with soils of well-marked productiveness occurring in other parts of the Dominion. The data are discussed at some length in the current report of the division, and the information there found will undoubtedly prove of assistance in the economic maintenance of fertility in these and similar areas.

WHEAT.

As for a number of years past, a very considerable amount of research work has been done in connection with this important cereal. The varied character of these investigations is well indicated by the following subject titles taken from the annual report:—

Influence of Age.—The effect of storage on wheat and flour, in so far as it might be determined by chemical analysis, has been studied, and the results obtained have been compared with those from actual baking trials by the Cerealist. In the larger number of the wheats and flours examined the determinations made did not indicate any general changes in composition of a marked and progressive character.

Influence of Environment.—In continuing the study of this problem, wheat grown on irrigated and non-irrigated land at Lethbridge, Alberta, and on sod and fallow land at Lacombe, Alberta, have been analysed. It was found that early ripening brought about by lessening the supply of soil moisture and high temperatures, produced a hard, glutinous wheat. On the other hand, prolonged vegetative growth, as induced by excessive moisture and comparatively low temperatures, allowed a further deposition of starch, resulting in a more or less soft kernel. We have, therefore, in the usual autumnal climate of the Northwest a most important factor in the production of first quality wheat.

The effect of Dampness.—This work was done to supplement that of the Cerealist in determining what deterioration or change in baking strength might result from keeping wheat more or less damp, as sometimes occurs when bad harvesting weather sets in while the grain is still in the stook. Under the conditions of the experiment, which resulted in the wheat containing from 20 per cent to 25 per cent moisture, no marked chemical changes apparently occurred during the first week or ten days. The

data, however, are as yet insufficient to allow of any final conclusion, though it is apparent that subjection of the well ripened wheat to dampness for a short period, provided there is no heating or fermentation, may not materially affect the quality of the wheat.

Influence of Fertilizers on Composition.—The cereals harvested in 1907 from the fertilizer plots of the Experimental Farm are being submitted to analysis with the view of ascertaining what effect the furnishing of the various elements of plant food may have had on the composition of the grain. So far as the work has proceeded no appreciable influence has been observed upon the amounts of nitrogen, phosphoric acid and potash normally present in the grain by modifying the character and amount of plant food supplied.

BARLEY.

A very considerable amount of work has been accomplished in connection with Canadian-grown barleys—both two and six-rowed varieties. It has been found that, as in the case of wheat, environment—and more particularly the climatic conditions under which the grain matures—may very materially affect the protein content. Rapid growth, with a dry, hot season during the ripening period, results in a barley rich in protein, while cool and damp autumns give a starchier grain.

INSECTICIDES AND FUNGICIDES.

Much work of an investigatory character, yielding results of importance to orchardists and fruit growers, has been done. Analyses have been made of many commercial spraying preparations found on the Canadian market, including Lead arsenate, Bordeaux mixtures and Lime-sulphur washes. Spraying against injurious insects and fungi is now widely practiced, and there is evidently a tendency to purchase the ready-made spray rather than to make the preparation on the farm. In view of this it has been thought desirable, in addition to giving instruction for the making of sprays at home, to examine and report upon the composition and relative effectiveness of the various brands offered for sale.

COMMERCIAL FEEDING STUFFS.

Particular attention has been paid to the matter of feeding stuffs, the analyses of about forty being given in the report of the chemist. These include milling and factory by-products of various kinds. This work has been done in response to a widespread demand for information respecting their feeding value. Owing to the varied nature of these materials, chemical analysis, in a very large number of instances, is necessary to determine their nutritive qualities. It enables the farmer to protect himself against worthless feeds and buy to the best advantage.

WELL-WATERS FROM FARM HOMESTEADS.

Ninety-six samples from farm wells in different parts of the Dominion have been analysed and reported on. It is an encouraging sign that our farmers are taking

more and more interest in this matter of a pure water supply. It will mean better health in the farm home and greater thrift among the live stock.

MEAT INSPECTION DIVISION.

Between two and three hundred samples of various chemicals, &c., collected by Inspectors under the Act at Canadian packing establishments, have been submitted to careful chemical and microscopical examination. These comprised, chiefly preservatives, spices and colouring matters, and were examined as to their nature and the presence of deleterious substances.

TOBACCO DIVISION.

Assistance has been rendered the Tobacco Division by the complete analysis of a number of soils and fertilizers used in experimental work for tobacco growing.

CEREAL DIVISION.

Though the past season at Ottawa was not very favourable for the growing of cereals, considerable progress was made in the breeding, selecting and testing of varieties of wheat, oats, barley and peas. In addition to these most important kinds of grain, experiments were carried on with flax, field beans, Indian corn, field roots, &c. Many of these experiments are proving of considerable interest, and may be expected to give results of increasing value from year to year.

At most of the branch experimental farms, climatic conditions were such as to yield satisfactory crops of cereals, so that good progress was made both in testing the varieties in plots, and in propagating in larger fields such of the most desirable sorts as are intended for free distribution to farmers.

Selected Strains of Cereals.

Now that the value of selection in the production of the best types of cereals is better understood by farmers in general, great interest is being manifested in the new, selected strains which have been produced at Ottawa by the Cerealist during the past few years; and, of which, some were available for free distribution for the first time this year. Two of these may be specially mentioned.

Huron Selected is a new strain of Huron wheat of great vigour and of strikingly uniform character. It has red chaff, and is bearded, and yields flour of a clear, pale, yellowish colour and of medium to high baking strength. The kernels are hard and of a rich reddish colour. This variety ripens early.

Stanley A is a selection from the original Stanley wheat, which shows about the same degree of earliness and productiveness, but which is somewhat superior in the baking strength of its flour, and shows a very striking gain in regard to the colour of the flour. The new selected strain yields flour which is cream-coloured, and quite free from the yellowish character which is sometimes objected to by millers.

These two new strains show so distinct an advance on the original varieties from which they were obtained that they have already begun to replace the older sorts.

The popular variety, Preston, has also been improved by re-selection, but the best new strain is not yet ready for distribution.

Red Fife Wheat.

Several selected strains of Red Fife wheat were started some years ago. These have been propagated and studied for a considerable length of time, and their number has at last been reduced to three. One of these is distinctly earlier in ripening than the original variety. It has therefore been named Early Red Fife, and will be distributed as soon as sufficient seed is available. While this wheat can be distinguished from ordinary Red Fife in some ways, there is no difference in regard to the kernels or the flour made from them. Milling and baking tests conducted in the laboratory of this division have shown that the Early Red Fife is identical with ordinary Red Fife, so far as yield, strength and colour of flour are concerned. Many requests for samples of Early Red Fife have already been received; but no general distribution will be possible for a year or two yet, as the quantity of seed now on hand is very small.

New Early Varieties of Wheat.

Since the degree of earliness manifested by the Early Red Fife is not nearly sufficient for some of the wheat-growing districts of Canada where the summer season is very short, many new sorts are being originated at Ottawa every year, with a view to finding some which will combine still greater earliness with the most desirable qualities of Red Fife. The number of these new sorts now on hand is quite large, but most of them must be studied for some considerable time yet before the final selection of a very few sorts, adapted to different climates and soils, can be made. Two new and promising kinds were, however, sent out to farmers this year for test, after having been tried with great success at some of the branch experimental farms for one or two seasons. These varieties are Marquis and Chelsea. Marquis is very similar to Red Fife, but is earlier in ripening. The resemblance between Marquis and Early Red Fife is quite striking, though they are of different descent. Marquis may prove of great value if it shows, in earliness, a distinct advance on Early Red Fife. Chelsea is a very early, beardless, red wheat which produces flour of a pale cream colour and of medium to high baking strength.

Oats and Barley.

Many new cross-bred varieties of oats and barley are now being propagated, and some of the best of these will be ready for distribution before very long. Some of the new kinds of oats come out free from hull when threshed, and are of particular interest on this account. Many of the barleys are also hulless, and most of them are beardless. Productiveness, ability to resist rust, stiffness of straw and earliness in maturing are other characters to which particular attention is being paid in the breeding and selecting of new kinds.

The occasional need for varieties of oats and barley having somewhat unusual characters is clearly recognized, and special efforts are being made to provide all the required new types.

Milling and Baking Investigations.

Milling and baking tests of old and new varieties of wheat were continued this past winter as usual. Two subjects of special interest occupied much of the time. The effect of storage on wheat and flour was further studied in considerable detail. The results obtained confirm, on the whole, those of previous years, and show that as a rule both wheat and flour improve, from a baker's point of view, in strength and in colour (of flour) when stored under good, dry conditions. The improvement is more rapid when the material is kept over as flour than when kept as wheat.

A special series of tests was undertaken to determine the effect of excessive moisture in wheat intended for flour making. A good, bright sample of wheat was kept very damp for many days, portions of it being taken out from time to time. These portions, as well as the original wheat, were dried and ground. The flour from each was then subjected to a series of baking tests in order to ascertain what changes, if any, had occurred. It was found that though the damp wheat was quite spoiled in appearance, the total yield of flour obtainable was essentially unchanged, and that the bread-making qualities of the flour from some of the damp samples were quite equal to those of the flour made from the original sample. The conclusions reached were that wheat may remain quite damp for a considerable length of time without injury to the baking strength of the flour, provided the wheat has not become at all musty.

Further tests in regard to the effects of dry storage and the effects of dampness are contemplated.

POULTRY DIVISION.

In this division the work of developing prolific egg-laying strains and correct market types of fowls was continued. Trap nests were used as the most reliable means of obtaining data. Experience so far gained shows that, by breeding from trap nest selected layers and market types, better egg layers and flesh-producing strains follow. The latter characteristic is most marked in fowls of the utility, or heavier, varieties. The beginner in poultry keeping will find it to his advantage to procure eggs or stock from parent stock of ascertained merit as egg layers or flesh producers.

The trial of different styles of unheated poultry houses during the winter seasons of the past three or four years has also been an interesting and instructive feature of the work of this division. The more advanced pattern of unheated poultry house with a cotton front in lieu of boards and without scratch shed has given satisfactory results. Letters from several correspondents in Saskatchewan and Alberta also express satisfaction with this style of house, which they say is not only suitable to their winter conditions but economical to construct, the latter a matter of no small moment to them. The comparison of the well ventilated cotton front and unheated poultry house method of keeping fowls during winter, with the close and poorly ventilated system

of the heated houses of past years, shows marked difference, and is apparently a step in the right direction. The experience gained should tend to make poultry keeping on the farm during the winter season much easier, for the opinion is yet entertained by many farmers that winter egg laying is dependent upon the poultry house being warm. This warmth is often secured at the cost of proper ventilation.

During the months of April and May of last year there was demand for a large number of eggs for hatching from the different breeds of fowls kept in the division. As far as practicable the orders for eggs were filled.

A large and growing correspondence was a gratifying instance of the interest being taken in the poultry branch of farm work.

A striking feature of the year was the high price of strictly new laid eggs during both the winter and summer seasons. This fact should be an incentive to greater egg production throughout the country.

BRANCH FARMS.

Experimental Farm, Nappan, N.S.

The spring opened very late, and was for the most part cold and wet. The earliest sowing of grain on the Nappan Farm was on May 20. Notwithstanding this late period of sowing, subsequent favourable weather brought the crops on rapidly, and wheat gave a considerably higher average yield than in 1907, and barley a slightly higher yield. In oats there was a falling off of about six bushels in the average yield per acre, 68 bushels 16 lbs. being the average returns for 1907, and 62 bushels 24 lbs. for 1908.

The average yield of Indian corn on the trial plots of the Experimental Farm was 23 tons 251 lbs. per acre, which was about double that obtained in 1907. Potatoes and field roots, with the exception of carrots, gave somewhat smaller crops than in 1907.

Experimental Farm, Brandon, Man.

At the Brandon Farm the spring weather was favourable for sowing, so that all crops were got in in good time and under good soil conditions. Favourable weather continued until about the middle of July, when two weeks of very hot weather occurred. This ripened the grain very rapidly, and thus the yield of some crops was considerably reduced. Oats suffered most severely. Heavy frost held off until all the grain crops on the Experimental Farm were harvested. There were several degrees of frost on August 22, which touched some of the latest wheat, also the corn on low land. The season throughout has been a good one in the Brandon district, a good average crop having been secured and in good condition. The varieties of wheat grown averaged a somewhat heavier yield than in 1907, while most of the other crops fell a little short of the figures for that year.

Some interesting experiments have been conducted with stock, including the feeding of steers with no other shelter than the scrub growing in some ravines on one part of the farm.

Experimental Farm, Indian Head, Sask.

The spring of 1908 was one of the finest seasons for seeding in all parts of the province of Saskatchewan which has been had for many years. The weather was favourable at the outset, and the seeding began nearly three weeks earlier than that of 1907. Timely showers kept the ground in a condition of moisture favourable for rapid growth, while hot weather later in the season ripened the grain very fast. On July 25 the temperature reached 94·5 degrees F., the culminating point of a very hot period. This extreme heat had an injurious effect on some of the grain, causing it to shrivel. The weather was exceptionally favourable for harvesting and threshing. The trial plots of wheat in 1908 have given more than twice the crop of 1907. The other grain crops have been somewhat smaller than last year. The grain was nearly all ripe and safely harvested before frost occurred.

Experiments in the growing of roots, corn and potatoes have been continued with satisfactory results. Tests with different sorts of vegetables have also been conducted, many of them with seed grown on the Indian Head Farm.

Experimental Farm, Lethbridge, Alberta.

At this new Experimental Farm two series of trial plots were conducted in 1908, one after the methods practiced in connection with 'dry farming,' the other on irrigated land.

The land used for both sets of plots was broken from the bare prairie in the spring of 1907, about three or four inches deep, and backset one or two inches deeper later in the season. The land on the dry or non-irrigated portion was backset in August, while the part to be irrigated was not backset until September or October, which left it more open and less moist, consequently the non-irrigated grain was sown on land in a somewhat better condition of tilth than was the irrigated.

The different varieties of grain were all sown in uniform plots. The preparation of the soil for the trial plots of Indian corn, field roots and potatoes was the same as for the grain.

The crops sown on irrigated land were also on plots of uniform size. No winter wheats were sown on irrigated land. The varieties of spring wheat gave considerably larger crops under irrigation, while the crops of oats and barley were much the same under both methods of culture. Indian corn produced a heavier crop under irrigation, so also did field roots. The experiments referred to on this farm have only been carried on for one year. Winter wheat grown on this farm under 'dry farming' methods gave excellent crops.

Experimental Farm, Lacombe, Alberta.

The season of 1908 at Lacombe was much more favourable for wheat growing than that of 1907. The crop has been larger and the grain was well matured. Seeding was about three weeks earlier, and the growth was rapid until August, when cool weather delayed the maturing of the grain, which ripened slowly but fully before frost.

In 1907 the trial plots of spring wheat gave on an average 21 bushels 51 lbs. per acre, whereas in 1908 the average yield was 33 bushels 34 lbs. per acre. Of the other important farm crops, peas, turnips and potatoes have given larger crops in 1908, while with oats and barley the crops were lower but the grain was better ripened.

Experimental Farm, Agassiz, B.C.

The season of 1908 opened earlier, and the grain was sown about ten days sooner than in 1907. The weather also later in the season was favourable to the ripening of grain, and it matured well and early. Oats, two-rowed barley, peas and field roots all gave heavier crops in 1908 than in 1907.

The crop of fruits was on the whole good. Apples were a medium crop and plums a heavy crop.

GENERAL CROPS.

FIELD CROPS AND LIVE STOCK OF THE FISCAL YEAR.

We are getting nearer to an actual measure of quantities and values of the agricultural products of Canada since the inception of a system of crop and live stock reports in the Census and Statistics office. Full and accurate reports are not possible yet, but careful indications are becoming practicable. The fiscal year ending with March takes in the harvest of 1908, and the numbers of live stock, and the reports deal with conditions as well as quantities and values.

The growing season opened auspiciously and seeding operations were successfully conducted. At the end of June high standards of condition were reported for all the provinces, and an ample rainfall was recorded everywhere. But the weather took an adverse turn in July, and a drouth set in over a wide area. The effect was noticeable on all the late growing crops, and although failure did not occur anywhere the fine promises of June were nowhere fully realized except perhaps in the wheat and barley harvests of Ontario. In Manitoba, Saskatchewan and Alberta, which are now the chief grain growing provinces of the Dominion, growth was arrested first by a want of sufficient rain, and later as the ripening stage approached by lower temperature and in a few localities by actual frost. Yet on the whole the harvest was fairly good in all the provinces, and the final reports of field crops at the end of November showed a value of $432,534,000 taken from 27,505,663 acres. It is almost certain, however, that the actual value exceeded this sum, as prices went steadily up after the close of lake navigation.

The wheat, oats and barley grown on 16,297,100 acres, gave an estimated value of $209,070,000; the rye, peas, buckwheat, mixed grains and flax grown on 1,525,750 acres, a value of $23,044,000; the hoed or cultivated crops of beans, potatoes, turnips and other roots, together with corn for husking and sugar beets, grown on 1,212,143 acres, a value of $66,754,000, and the hay and clover and fodder corn grown on 8,470,670 acres, a value of $133,666,000.

Fall wheat, which is chiefly produced in Ontario and Alberta, had an average yield of 24·40 bushels per acre; spring wheat, 16 bushels; oats, 31·64 bushels, and barley, 26·79 bushels.

In Prince Edward Island the value of all field crops in the year was $9,408,000; in Nova Scotia, $20,084,000; in New Brunswick, $18,042,000; in Quebec, $80,896,000; in Ontario, $185,308,000; in Manitoba, $66,660,000; in Saskatchewan, $37,614,000, and in Alberta, $14,522,000. No figures are available for British Columbia. The average value of field crops for the Dominion in the year is $15.72 per acre, and the average value computed on an estimated population of 6,940,000 at July 1, is $62.32 per head.

The number of horses in the Dominion at the end of June last year was 2,118,165; of milch cows, 2,917,746; of other cattle, 4,629,836; of sheep, 2,831,404, and of swine, 3,369,858, being increases in every kind except the last named over the numbers for the previous year. The total value of farm animals is given as $531,000,000.

As evidence of the rapid growth of the Northwest prairie provinces, it may be stated that at the end of June, 1906, when the last government census was taken, the number of farms was 122,398, and that at the end of December, 1908, the homesteads entered in the interval less all cancellations increased the number to 190,234, or by 10,853,760 acres. It may be stated also that the quantity of wheat inspected in the three provinces for the eight months of the harvest year 1908 exceed the quantity inspected for the same period of the preceding year by 20,532,280 bushels.

HEALTH OF ANIMALS BRANCH.

In this branch of my department the year just past has been a very busy one, although, fortunately, the extra pressure has not been due to any serious or widespread outbreak of disease within our borders.

What may be termed the ordinary duties of the staff, namely, the work of controlling animal diseases with a view to their ultimate eradication, that of maintaining a strict quarantine against the introduction of infection from other countries, and that of research and experiment, have all been carried on in a satisfactory and effective manner.

The details of the work performed in these various lines are briefly dealt with below, and will be found fully set forth in the report of the Veterinary Director General and Live Stock Commissioner, which is now issued as a separate publication.

The recently added Meat Inspection Division of this branch has been still further developed and enlarged, and many of the initial difficulties having been overcome, it is settling down to the conscientious performance of a new line of public duty, the need for which becomes more and more apparent as time goes on and the actual conditions of the trade become known.

During the early winter a heavy strain was imposed on the branch by the occurrence of serious outbreaks of Foot and Mouth disease in several of the United States.

Unfortunately, two of these outbreaks took place in New York and Michigan, respectively, and in each case in territory lying in immediate proximity to the Canadian frontier. The disease existed to an alarming extent in that portion of New York lying along the Niagara river, while in Michigan it was equally threatening in the district adjacent to the Detroit river.

Foot and Mouth disease is one of the most contagious of known maladies, and one transmissible to a remarkable degree by indirect channels of many different kinds. It is therefore all the more gratifying to be able to report that owing to the prompt and energetic measures adopted by the officers of this branch, and to their untiring vigilance, the infection has been entirely excluded, and that not a single case has occurred in the Dominion, although a serious outbreak was detected and dealt with by the United States authorities on Grand island in the Niagara river.

The success with which this great national danger has been met and averted is, in itself, an ample justification of the continuous and strenuous efforts which have during recent years been devoted to the building up of an able and effective veterinary sanitary service.

It has not been found necessary in the past year to erect any new quarantine stations, nor have any changes been made in the quarantine regulations, except, of course, during the period in which Foot and Mouth disease has existed in the United States. On the facts being ascertained, it was deemed advisable to prohibit entirely the entry of live stock of any kind which had originated in or passed through the states of New York, Michigan, Pennsylvania, New Jersey, Maryland and Delaware, as also of hay, straw, other fodder or manure from these states. As the disease has been brought under control by the United States authorities, the restrictions have been gradually modified, and unless something unforeseen occurs will soon be entirely removed.

Precautions were also taken to safeguard the reputation of our Canadian cattle in Europe by forbidding their shipment from United States ports, or on vessels which had within twenty-one days previous called at any port in an infected state. Vessels carrying live stock of United States origin from ports on the Atlantic coast were also interdicted from entering Canadian ports. These restrictions have now also been almost entirely superseded by the ordinary regulations.

The campaign against glanders is still being persistently and successfully carried on. Although, especially in the prairie provinces, the disease is still giving a good deal of trouble, it is slowly but surely being stamped out.

While more horses have been tested with mallein this year than ever before, the number destroyed is smaller by 343 head, and the amount of compensation has decreased by the sum of $29,481.77.

Fresh centres of infection are still occasionally created by horses from the United States, for, although danger from this source has been greatly lessened by the adoption of the policy of testing all imported horses, it is scarcely possible to detain all settlers at ports of entry for this purpose.

The method followed by our immigration officers, in conjunction with the railway authorities, tend to bring the new settlers to the boundary in large numbers on certain fixed days. As a result, it is practically impossible to hold them all, and a certain proportion of horses are therefore permitted to proceed to destination points to be tested after arrival there. In this way some few animals affected with the disease in a latent form occasionally gain access to the country, and until followed up and tested constitute a more or less serious danger to any horses with which they may come in contact.

In the eastern provinces and in British Columbia, however, the disease has been, to all appearance, brought under effective control.

A new policy has been adopted in dealing with mange among cattle in the area in which that disease exists in Alberta and Saskatchewan. The enforcement of the compulsory dipping order having been instrumental in eradicating the affection in many isolated districts of varying extent, and having also served a good purpose in rousing the stockmen to the necessity of active measures in providing facilities for dipping and in other ways, it was thought best to substitute for it the less burdensome policy of close inspection and prompt treatment of all animals actually affected and of those found to be or to have been in contact with them.

The new method is working well, and it is universally admitted by stockmen that there is now much less mange in the range country than at any time during the last fifteen years.

The efforts made to stamp out the disease of horses known as Dourine or Maladie du Coït have also been attended with gratifying success. Very few new cases have been discovered during the year, and there is every reason for the belief that the disease has been brought under control and that it will shortly be entirely eradicated.

Owing to its exceedingly treacherous and erratic nature, however, and to the great difficulty attending its diagnosis, it will undoubtedly be necessary, for some time to come, to watch very closely all the horses in the districts where its presence has been detected. The strict supervision maintained over the movement of horses has apparently been effectual in preventing its spread to other localities, as no new centres of infection have been discovered.

At the branch laboratory maintained in connection with the quarantine station at Lethbridge, research work is still being carried on in the hope of discovering either a curative agent, an effective prophylactic or at least a reliable means of diagnosis. So far, however, the results of this work are altogether disappointing except for the discovery and identification in 1907 of the specific trypanosome, fixing conclusively for the first time on this continent, the identity of the disease.

For many years cattle in some districts of British Columbia have suffered from recurrent outbreaks of a disease known locally as red-water. Maladies of this class have almost invariably been found to be due to the presence in the blood stream of a specific parasite generally transmitted through the bite of some species of tick which, living on the skin of the animal, acts as an intermediary host for the micro-organism

producing the disease. With the aim of securing definite information, a highly skilled and experienced veterinary pathologist has during the past year been engaged in making a thorough investigation into the nature of the disease and its cause. Although such progress has been made as to render it practically certain that the causal agent of red-water in British Columbia is a blood parasite having for intermediate host one or other of several species of tick, the knowledge obtained is not yet of a sufficiently definite nature to warrant my taking action upon it.

The investigation will, however, be continued, and it is hoped will in the near future be productive of satisfactory results.

Although several isolated outbreaks of hog cholera occurred in Ontario last summer and a few cases have also been dealt with in British Columbia, there has been no recurrence of the disease in those districts of western Ontario where it was formerly so firmly established. With one exception, in which the infection could not be traced, the outbreaks in Ontario undoubtedly owe their origin to the transit trade in United States hogs, while those in British Columbia were traceable to importation from south of the line.

Owing to the fact that the herds in which the disease made its appearance were exceptionally large, and that one of them consisted entirely of valuable pure bred animals, the expenditure for compensation shows a slight increase over that of the last few years. This, however, is incidental, and due only to the exceptional circumstances above mentioned.

Several outbreaks of sheep scab were detected and dealt with in the early part of last season. The disease was in all cases limited in extent, and as active measures were adopted no great difficulty was experienced in securing its eradication.

All the premises on which it was found have been repeatedly visited and inspected, and with the exception of one small flock in the county of Simcoe, which is still being held for treatment, there is now no evidence of its existence in any part of the Dominion.

I regret to say that rabies has, during the past year, repeatedly made its appearance in Ontario, a number of dogs and other animals bitten by them having been affected. Several human beings were also bitten, but by the prompt application of the Pasteur treatment, the disease was in every case arrested, and no bad results, so far as I have been able to ascertain, followed the exposure to infection.

The disease has, without doubt, entered Canada from the state of New York, where it has been known to exist for a considerable time, and where it was, last year, unusually prevalent.

On one occasion an outbreak was traced to a dog which came across the Suspension bridge at Queenston, bit several animals on the Canadian side, and returned to its own country, without being suspected at the time.

Another outbreak at Red Deer, Alberta, was found on investigation to be due to a dog taken from Hamilton, Ontario, where a number of cases have since been discovered and dealt with.

The disease is apparently progressing gradually across the western peninsula of Ontario, but will, unless checked by exceedingly stringent measures, undoubtedly extend to the rest of the province, and eventually to the whole Dominion.

In this connection it is worthy of note that in the provinces of Manitoba and Saskatchewan, where the country is more sparsely settled and dogs are less numerous, the outbreaks which took place in 1907 were effectually stamped out by my officers.

The origin of neither of these outbreaks could be traced, but there is every likelihood that the disease was brought in by dogs accompanying settlers from the United States, as no authentic cases have been known to occur in Canada previous to the last two years.

Rabies was stamped out in Great Britain by the enforcement of strict muzzling orders extending over lengthy periods, and the adoption of an inflexible regulation requiring the isolation for six months of all dogs imported. Such a policy is practically impossible in Canada, with her lengthy land boundary and her free intercourse with the United States.

It is evident, however, that unless rabies is to be permitted to spread through the entire country, some specially stringent restrictions will have to be placed on the movement of dogs.

Anthrax is still occasionally reported from various parts of the country, most of the outbreaks being, as usual, in eastern Ontario. This disease has now, however, apparently largely lost its terrors since the more general adoption, in addition to the ordinary precautions, of the system of preventive inoculation.

For this disease and Black Quarter the preventive vaccines are prepared in the biological laboratory connected with the branch. They are supplied to stock owners at the nominal price of five cents per dose, and although fortunately the need for anthrax vaccine is not great, that for the prevention of Black Quarter is in great demand, especially in those districts where, until recently, that malady was of frequent occurrence.

The biological laboratory continues, in this and many other ways, to demonstrate its usefulness and justify its existence. The sums annually saved to the department by the manufacture of mallein and tuberculin are very considerable, but are small in comparison with the benefits conferred on the stock owners of the country. These last not only save much money in being able to purchase reliable vaccines at a nominal cost, but also derive great advantage from the use by our officers in test work of absolutely dependable preparations, and from the accuracy of diagnosis obtainable through the submission of pathological specimens to the specially trained experts of the department.

Conditions with reference to bovine tuberculosis remain practically unchanged. The problem of the control of this disease is unquestionably the most serious now confronting the veterinary sanitarian. Although the energies of all advanced students of comparative medicine have been for many years devoted to its solution, a method of

dealing with it in a manner at once practicable and effective has yet to be found. One section of the International Congress on Tuberculosis, which was held at Washington in September and October last, devoted itself entirely to bovine tuberculosis, but without reaching any definite conclusion as to the methods most likely to effect its control.

A comprehensive paper on bovine tuberculosis which was, on this occasion, contributed by Dr. Rutherford of my department, and in which the difficulties of the situation were very clearly set forth, has since been extensively republished and reviewed, and has elicited much favourable comment, not only on this continent but in Europe and other parts of the world.

It is to be sincerely hoped that before long a way will be found to effectively check this disease and secure its ultimate eradication. So far, however, all attempts to attain these objects by legislation have been attended with so little success that I have thought it prudent to postpone action in this direction until it is possible to formulate a more definite and promising policy than has yet been proposed or attempted.

The experiment in keeping a tuberculous herd in the open air, which has been in progress since December, 1905, has now been terminated, and its results in detail are in course of publication.

The objects of this experiment, which was of a purely practical nature, were threefold: firstly, to ascertain the effect of open air treatment upon the diseased cattle themselves; secondly, to ascertain to what extent healthy cattle, kept in contact with diseased cattle under open air conditions, are subject to infection; thirdly, to ascertain what percentage of healthy calves it is possible to rear from diseased cows kept without any precautions under open air conditions.

The data obtained indicate that open air life is highly beneficial to tuberculous cattle, and that the danger of the transmission of the disease to adult cattle kept in contact, under these conditions, is very slight. On the other hand, the percentage of healthy calves raised by the diseased cows is, as was to be expected, comparatively small.

These results are interesting in view of the present tendency to consider the digestive tract the most frequent channel of infection. While the experiment above outlined assists in proving that young animals can be and are most frequently infected through the digestive system, it also indicates that, in the case of adults, infection through the air passages plays an important part.

There is little doubt that had the healthy cattle in this experiment been kept under ordinary stable conditions with their diseased companions, they would not have escaped as they did.

The meat inspection service inaugurated in September, 1907, has been further developed and more fully organized. Its operations are, of course, still limited to establishments engaged in export or interprovincial trade, but the high standard of inspection set by my officers has attracted much favourable public comment, and there

is little doubt that similar measures will soon be adopted by the local authorities of many of the principal communities throughout the country.

It is gratifying to be able to report that, although suffering from a marked depression in the export trade, which naturally makes the losses from a close inspection more keenly felt, the packers almost without exception show the greatest loyalty to the department, and co-operate heartily with my officers in carrying out the requirements of the Meat and Canned Foods Act.

This measure also applies in a more limited degree to fruits and vegetables when those are put up or prepared for export or interprovincial trade. While many of the factories engaged in canning or otherwise preserving fruits and vegetables were found to be under modern sanitary conditions, my officers found that in a number of others, there was much room for improvement in this and other respects. In most cases of this kind, however, but little difficulty was experienced by the inspectors, specially detailed to this line of work, in convincing those in charge of the establishment that it would be to their advantage, immediate and ultimate, to comply with the provisions of the law. As a result, a marked improvement in methods and conditions, as well as, in some cases, in the materials used has been brought about, to the great advantage of producer, packer, retailer, and last, but not least, consumer.

ARCHIVES BRANCH.

The work of development and organization in this branch has continued during the past year. Many important additions have been made to the Archives, a full report of which is given in the appendix to this volume. (See Appendix No. 18.)

III.—PATENTS OF INVENTION.

The following tables show the transactions of the Patent Branch of the Department of Agriculture from April 1, 1908, to March 31, 1909:—

Applications for Patents.	Patents and Certificates Granted.			Caveats.	Assignment of Patents.	Notices under Section 8.
	Patents.	Certificates.	Total.			
7,239	6,395	827	7,222	319	3,001	713

DETAILED STATEMENT, Patent Office Fees.

Month.	Patents.	Assignments.	Copies.	Caveats.	Sundries.	Subscriptions.	Notices.	Total.
1908.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
April	14,203 00	519 50	197 47	143 00	0 25	131 10	112 25	15,306 57
May	15,317 45	533 03	120 90	150 00	11 75	64 30	148 00	16,345 43
June	13,939 85	555 65	154 20	155 00		37 70	134 00	14,976 40
July	13,773 70	469 70	141 85	135 00	4 50	24 60	141 00	14,690 35
August	13,000 25	552 00	144 60	105 00	5 75	5 90	111 75	13,925 25
September	11,560 25	570 25	161 60	130 00	7 30	7 90	94 00	12,531 30
October	12,461 00	486 70	130 06	180 00	2 25	7 85	81 00	13,348 86
November	11,923 70	508 50	172 15	110 00	6 00	19 80	129 00	12,869 15
December	14,130 60	687 85	223 46	120 00	12 00	24 33	87 25	15,285 49
1909.								
January	13,802 25	610 50	239 45	145 00	6 00	31 30	128 00	14,962 50
February	13,003 75	483 50	151 65	210 25	13 00	13 10	106 25	13,981 50
March	17,204 90	612 75	217 00	230 00	13 50	38 10	153 00	18,469 25
	164,320 70	6,589 93	2,054 39	1,813 25	82 30	405 98	1,425 50	176,692 05

The Canadian patentees were distributed among the provinces of the Dominion as follows:—

Ontario.	Quebec.	Manitoba.	British Columbia.	Nova Scotia.	New Brunswick.	Saskatchewan.	Alberta.	Prince Edward Island.	Yukon.
467	205	71	51	24	18	32	28	3	4

Patents issued to residents of Canada, with the ratio of population to each patent granted:—

Provinces.	Patents.	One to every
Ontario	467	4,769
British Columbia	51	5,095
Manitoba	71	5,535
Alberta	28	7,979
Quebec	205	8,575
Saskatchewan	32	9,914
Territories and Yukon	4	17,945
New Brunswick	18	18,746
Nova Scotia	24	19,391
Prince Edward Island	3	33,668

Patents issued to citizens of foreign countries:—

Countries.	Patents.	Countries.	Patents.
United States of America	4,602	Russia	4
Great Britain	346	Norway	9
Germany	215	Newfoundland	1
Australia	58	Japan	1
France	59	Mexico	4
New Zealand	36	Netherlands	4
Sweden	40	Argentine	4
Belgium	17	Cape Colony	1
Austria	33	Portugal	1
Italy	10	Chili	1
Switzerland	11	Roumania	1
Denmark	8	Russian Poland	3
Transvaal	12	Finland	1
Hungary	5	Grand Duchy of Luxembourg	1
Spain	2	Panama (Canal Zone)	2

Statement of the number of patents issued under the Act, on which the fees are paid for periods of six, twelve or eighteen years, at the option of the patentee; and of patents on which the certificates of payments of fees were attached after the issue of patents originally granted for periods of six and twelve years.

Period for which Fees were paid on First Issue.			Patents on which Certificates were attached after issue.		Reissues.
6 years.	12 years.	18 years.	6 years.	12 years.	
6,368	5	15	803	24	7

The total revenue of the Patent Office for the year ended March 31, 1909, was $176,692.05.

The total number of reports issued by the examiners during the year was 9,794, and seven patents were surrendered and reissued.

Out of the total number of patents granted by this office during the year, there were 4,602 issued to inventors, or assignees, resident in the United States, being 72 per centum of the whole issue.

This branch of my department continues to receive the official reports of patents from Great Britain, Australia, United States, Mexico and Japan, in addition to other periodicals of a scientific nature, in exchange for the Canadian Patent Office Record.

The number of new applications for patents presented during the year was 7,239.

I have again to direct the attention of applicants for patents to the necessity of exercising the greatest care in the preparation of their applications, a work which is generally advantgeously performed by patent solicitors not only in Canada but in other countries where patent laws are in active operation.

Patentees, under the instalment plan, who have paid fees for one or more partial terms of their patents, not infrequently postpone payment of the further fees required to keep their patents in force until after the date within which they are payable;

consequently the patents expire, and it is not in the power of the office to revive them. A revival can only be secured by a private Act of parliament, the obtaining of which entails considerable expense to the patentee. The attention of patentees is therefore again called to the necessity of making their payments in time.

In considering petitions for extensions of time to manufacture or import under sections 39 and 40, the law is applied according to its strict and literal meaning, and the petitions are granted only when the petitioner has clearly established, to the satisfaction of the office, by affidavit or solemn declaration that the failure to manufacture or import is due to no fault of his, but to reasons beyond his control.

The requirements of the law in regard to manufacture have been kept in mind when considering applications from patentees, or their assignees, to have their patents brought under the conditions of section 44 of the Act. (Compulsory Licence System.) The applications which have been granted, numbering 1,092, are those relating to patents for inventions such as the following: Certain patents for an art of process; certain patents for improvements on a patented invention when both patents are not held by the same person; patents for certain appliances or apparatus used in connection with railway, telegraph, telephone and lighting systems, and other works usually under the control of public or large private corporations, and which appliances or apparatus cannot be installed or constructed without the consent of such corporations; and patents for inventions which are manufactured or constructed only to order, and are not, according to custom, carried in stock.

The closing month of the present fiscal year shows a very large increase in the business of the office and in its revenue. The total amount received was $18,469.25, being the largest receipts for the same period of time in the history of this branch of my departmnt.

IV.—COPYRIGHTS, TRADE-MARKS, INDUSTRIAL DESIGNS AND TIMBER MARKS.

Statement of fees received by the Copyright and Trade-mark Branch from April 1, 1908, to March 31, 1909.

Months.	Trade Marks.	Copyrights.	Designs.	Timber Marks.	Assignments.	Copies.	Total.
1908.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
April	2,551 20	111 25	140 00	2 00	20 00	23 75	2,848 20
May	2,524 80	88 00	130 00	2 00	30 00	69 50	2,844 30
June	3,010 55	130 40	42 00	....	39 50	31 00	3,253 45
July	1,976 40	138 85	55 10	6 00	64 00	14 50	2,254 85
August	2,176 25	168 00	30 00	6 00	13 00	11 75	2,405 00
September	2,900 05	146 00	160 50	28 00	320 00	30 75	3,585 30
October	4,314 90	129 50	40 00	12 00	8 00	11 50	4,515 90
November	2,725 30	107 50	44 00	16 00	30 15	23 75	2,946 70
December	2,462 00	178 15	65 00	10 15	79 00	24 50	2,818 80
1909.							
January	2,996 05	114 00	69 00	2 00	16 00	21 25	3,218 30
February	2,892 80	110 25	88 50	4 25	19 75	30 25	3,145 80
March	3,375 15	171 35	80 40	8 00	32 00	10 50	3,677 40
Totals	33,905 45	1,593 25	944 50	96 40	671 40	303 00	37,514 00

The particulars of the registrations made by the Copyright and Trade Mark Branch of the Department of Agriculture during the year ended March 31, 1909, are as follows:—

I. Copyrights—		
Full copyrights without certificates	1,213	
Full copyrights with certificates	142	
Temporary copyrights without certificates	6	
Temporary copyrights with certificates	7	
Interim copyrights without certificates	26	
Interim copyrights with certificates	21	
Renewals of copyrights	1	
		1,416
II. Trade Marks		802
Renewals of specific trade marks		14
III. Industrial Designs		162
Renewals		3
IV. Timber Marks		44
V. Assignments		343
Total registrations		2,874

The following table shows a comparative statement of the business of this branch from 1897 to 1908, inclusive:—

Year.	Letters Received.	Letters Sent.	Copyrights Registered.	Certificates of Copyrights.	Trade Marks Registered.	Industrial Designs Registered.	Timber Marks Registered.	Assignments Registered.	Fees Received.
									$ cts.
1897	2,606	3,548	756	273	416	75	13	91	11,161 93
1898	2,576	3,453	730	275	423	136	15	114	13,535 17
1899	2,487	2,910	702	227	430	112	5	117	11,161 28
1900	2,679	3,213	893	247	447	126	22	136	14,782 53
1901	2,605	3,211	888	249	521	146	24	183	16,823 26
1902	2,687	3,257	900	196	528	164	26	222	17,703 09
1903	2,687	3,214	900	176	557	88	23	272	18,086 25
1904	2,858	3,293	1,106	228	621	107	25	118	20,647 30
1905	3,367	3,902	1,130	189	661	139	22	154	23,706 77
1906	5,340	5,193	1,228	169	1,119	125	47	282	33,107 13
1907	4,475	4,353	1,210	175	848	182	33	136	30,073 29
1908	6,647	4,980	1,416	170	852	162	44	343	37,514 00

V.—PUBLIC HEALTH AND QUARANTINE.

The usual threatenings of infectious diseases from the Orient and from Europe, South America, &c., have continued since my last report. Strict measures, ordinary and special, have therefore been applied by me for the sanitary protection of the country. Circular letters of warning and instruction were issued from time to time to the regular quarantine officers; and to the customs officers, who are also ex-officio quarantine officers, at the unorganized maritime and frontier ports.

The Sixth Triennial Meeting of the International Congress on Tuberculosis, was held in the United States capital from September 28 to October 3 last. I had pleasure in arranging that three delegates from this Dominion should represent the government at this great international congress. There were thirty-three countries officially represented, and more than six thousand delegates present.

Although there have been no actual cases of bubonic plague amongst human beings on this continent during this year, fatal cases of rat plague have continued. In San Francisco the last case of rat plague was on October 23 last; in Oakland, California, on December 1 last; and in Seattle, Washington, on September 26 last.

In view of the lapse of time since the last cases of human plague had occurred in San Francisco and Seattle, the special inspection of passengers and crews from Californian and Puget Sound ports was removed by me on October 7 last. Measures for excluding rats, such as breasting vessels away from the piers, guarding mooring ropes by discs, limiting and guarding gangways, &c., are still, however, maintained.

The bubonic plague has occurred during the year in Australia, the Azores, Brazil, China, Equador, Egypt, England (Liverpool), East Africa (British and German), Formosa, Hawaii, India, Japan, Mauritius, Peru, Queensland, Russia, Venezuela and Zanzibar.

Asiatic cholera has occurred during the year in Arabia, Australia, Ceylon, China, India, Japan, Korea, Persia, Philippine islands, Russia, Siam, Straits Settlements, Turkey in Asia and Turkey in Europe. There was a sharp outbreak of this disease in Russia in July and August last, extending to St. Petersburg in September. Special care, therefore, was enjoined by me in the quarantine inspection of vessels arriving from Europe.

The temporary medical inspectors for smallpox on duty at the beginning of the year on the frontier south of western Ontario and Manitoba, were released from duty on August 15 last; the outbreak of smallpox in the neighbouring States having died down.

Owing to a reported outbreak of this same disease in Newfoundland, I suspended the order excepting, under section 7 of the Quarantine Regulations, vessels from Newfoundland and free from infectious disease; and on January 27 a circular letter was sent to my quarantine officers on the Atlantic coast, ordering the routine and careful inspection of all vessels from that island. This inspection is still in force.

In addition to the appearance of yellow fever in its accustomed haunts, it has occurred this year in Barbados. A circular letter to my Atlantic coast officers, drawing attention to this fact, was issued on February 17.

During this year four new cases of leprosy have occurred or were discovered in Canada. They were dealt with by me under the Act respecting leprosy. Two of the cases, which were found in New Brunswick, were removed to the Lazaretto at Tracadie in that province. The two other cases were Chinese, one found in Manitoba, the other in British Columbia. They were both, with their full approval, deported and sent back to China. They had both been some time in Canada before the disease appeared.

The diseases which have been brought to my maritime quarantine stations during this year, and stamped out there, are: Smallpox, beri-beri, diphtheria, scarlet fever, enteric fever, measles and chickenpox.

I have appointed Dr. Ernest H. Tremayne in medical charge of the quarantine of the port of Prince Rupert.

My department has lost an old and faithful officer, in the death of Dr. A. C. Smith, of Tracadie, which occurred at his home there on the 12th of this month, after some forty-four years of service to his country and to the lepers.

VI.—CENSUS AND STATISTICS.

The Canada Year Book, 1907, being the third volume of the second series, was published early in the year. The principal addition to the usual contents was a series of summary tables of the field crops and live stock of eastern Canada compiled from the postal census taken in 1907. The tables for the Year Book of 1908 have been compiled and the book is now passing through the press.

The report on the Criminal Statistics of 1907 has been issued, and the report for 1908 is now being prepared.

In June the Census and Statistics office commenced the issue of reports on the condition of the crops and live stock of Canada, such reports being based upon data collected voluntarily from practical agricultural correspondents in all parts of the Dominion. The condition of the principal crops during their season of growth and of live stock, expressed for all Canada and for each province by a system of numerical percentages, was reported upon monthly from June 30 to August 31; preliminary estimates of the yield of the principal crops were issued on August 31 and September 30; and on November 30 final estimates were published based upon actual threshing returns. Estimates of the value of the principal crops, of the wages of farm help, of stocks in farmers' hands, and of areas ploughed and seeded were also compiled from the returns of correspondents, carefully compared with other available data, and the results published as they became available.

The general results of the harvest as ascertained at the end of November were published in December, and they are summarized in the following table:—

Crops.	Area.	Yield per acre.	Total yield.	Weight per measured bushel.	Average price per bushel.	Total value.
	ac.	bu.	bu	lb.	$	$
Fall wheat	770,400	24·40	18,798,000	60·30	0·860	16,253,000
Spring wheat	5,839,900	16·03	93,636,000	58·51	0·800	74,975,000
Oats	7,941,100	31·64	250,377,000	35·47	0·390	96,489,000
Barley	1,745,700	26·79	46,762,000	42·02	0·460	21,353,000
Rye	100,350	17·05	1,711,000	55·58	0·740	1,262,000
Peas	412,900	17·09	7,060,000	57·25	0·850	5,979,000
Buckwheat	291,300	24·55	7,153,000	47·49	0·590	4,215,000
Mixed grains	581,900	32·73	19,049,000	45·25	0·530	10,140,000
Flax	139,300	10·76	1,499,000	54·23	0·970	1,457,000
Beans	60,100	27·00	1,245,000	59·18	1·590	1,988,000
Corn for husking	366,200	62·45	22,872,000	59·59	0·520	11,837,000
Potatoes	503,600	132·00	73,790,000	.....	0·470	34,819,000
Turnips and other roots	271,443	373·00	101,248,000	.....	0·170	17,532,000
		tons	tons		per ton	
Hay and clover	8,210,900	1·39	11,450,000	.....	9·960	121,884,000
Fodder corn	259,770	11·27	2,928,000	.....	4·030	11,782,000
Sugar beets	10,800	10·07	109,000	.....	5·310	578,000

According to the data collected from correspondents on June 30, the numbers of live stock in Canada were then as follows: Horses, 2,118,165; milch cows, 2,917,746; other cattle, 4,629,836; sheep, 2,831,404, and swine, 3,369,858.

Summaries of the monthly reports have been communicated to the press as soon as available, and the complete results have been given in a new publication of the department entitled, The Census and Statistics Monthly, the first number of which appeared in July. In addition to the special reports on the crops and live stock of Canada, this monthly has also included notes on the work of the various branches of the Department of Agriculture, crop reports from other countries, prices of agricultural produce in British markets, reports of the proceedings of agricultural scientific gatherings and miscellaneous statistical information relating to agriculture.

A census of the manufacture of butter, cheese and condensed milk in Canada for the calendar year 1907 was taken through the post during 1908, the form of schedule used for the purpose having been passed by order in council on January 17. The results were published as Bulletin VII. of the Census and Statistics office, entitled Dairy Production, 1907, and the statistics of this bulletin were compiled from the returns of 3,516 butter and cheese factories and seven factories producing condensed milk and cream. The value of land, buildings and plant was returned as $8,564,440, and of working capital as $1,641,787. The number of persons employed in factories during the year 1907 was 6,586, and the amount paid for salaries and wages was $1,811,875. The quantity of butter made in factories during 1907 was 45,930,294 lbs., with a value of $10,949,042; the quantity of cheese made was 204,788,583 lbs., with a value of $23,597,639; and the quantity of condensed milk and cream made was 12,176,135 lbs., with a value including all products of condenseries of $910,842. The value of all dairy products at factories was $35,457,543 in 1907, $33,257,674 in 1905 and

$29,731,922 in 1900. This was a gain at the average rate of 11·86 per cent in the five years 1900 to 1905, of 6·61 per cent in the two years 1905 to 1907, and of 19·26 per cent in the seven years 1900 to 1907. Owing to the drought prevailing in some localities the dairying season of 1907 was not a good one and production was short.

Three other bulletins of the Census and Statistics office were issued during the year. Bulletin VI. is a report on the immigrants of the agricultural class in the Northwest provinces, 1891-1906, and includes tables compiled from the returns of the Northwest census of 1906. The chief purpose of the tables is to show for groups of years the live stock held and the land occupied and in crops of the immigrants on the land in 1906 by two classes, viz., (1) country of origin, and (2) principal occupation before arrival in Canada. Bulletin VII., entitled Longevity and Sanitation, comprises two papers on the length of life and the health of the people, these being the substance of two addresses delivered by the Chief Officer before the McMaster University Convocation and the American Public Health Association. Bulletin IX. embodies the results of a personal investigation by the Chief Officer into the production of sugar beet in Canada and the manufacture of the roots into refined sugar. It includes also two appendices: A, consisting of the Hearings of the Customs Tariff Committee, 1905, not previously printed; and B. Beet Sugar Production in Posen, Germany.

The whole is respectfully submitted.

SYDNEY A. FISHER,
Minister of Agriculture.

PUBLIC HEALTH.

No. 1.

REPORT OF THE DIRECTOR GENERAL OF PUBLIC HEALTH.

(F. Montizambert, I.S.O., M.D.Ed., F.R.C.S.E., D.C.L.)

March 31, 1909.

Sir,—I have the honour to submit this my report as Director General of Public Health for the year ending this day.

The usual threatenings of infectious diseases from the Orient and from Europe, South America, &c., have continued since my last report.

Strict measures, ordinary and special, have therefore been approved by you for the sanitary protection of the country.

Circulars of warning and instruction were issued from time to time to the regular quarantine officers, and to the customs officers, who are also ex-officio quarantine officers, at the unorganized maritime and frontier ports.

On June 18, I left for inspection of the Leper Lazaretto at Tracadie, N.B., and the quarantine stations at Chatham and St. John, N.B., Halifax, Sydney and Louisburg, N.S., Charlottetown, P.E.I., the quarantine buildings at Pictou, N.S., and the station at Grosse Isle in the River St. Lawrence.

On August 5, I left for the inspection of the stations on the Pacific coast, Vancouver and Victoria. Before returning, I visited Seattle, to confer with the United States health authorities in connection with the outbreak of bubonic plague there. I also visited Edmonton to confer with the secretary of the Provincial Board of Health of Alberta, and arranged to meet the secretary of the Provincial Board of Saskatchewan at Winnipeg, to which place he was going to attend the annual meeting of the American Public Health Association. I waited over at Winnipeg for the meeting.

On September 3, I left for Grosse Isle, having been delegated as a Companion of the Imperial Service Order to publicly present, in the name of His Majesty the King, the medal of the Order conferred by His Majesty upon Mr. Jean Baptiste Turcotte, and old and recently superannuated employee, in recognition of his long and faithful services. The investiture was, in accordance with my instructions, carried out on the scene of his labours, and before a full gathering of his former fellow employees.

On September 26, I left for Washington, having the honour, as senior official delegate, to represent the Government of the Dominion of Canada at the Sixth Triennial Meeting of the International Congress on Tuberculosis, held in the United States capital from September 28 to October 3.

Over six thousand delegates registered, from thirty-three different countries. These included fifty from Canada.

The congress was opened in the Assembly Hall of the New Museum building, which has a seating capacity of four thousand, and in which even standing room was not available at the opening and closing ceremonies. On both of these occasions, Secretary of the Treasury Cortelyou presided, representing the President; and at the closing meeting the President himself appeared and delivered an address.

In addition to the United States, the countries represented were:—

Argentina, Austria, Belgium, Canada, Chili, Costa Rica, Cuba, China, Denmark, Ecuador, England, Scotland and Ireland, France, Germany, Greece, Guatemala, Holland, Italy, Japan, Mexico, Norway, Panama, Hungary, Portugal, Roumania, Russia, Spain, Sweden, Siam, Switzerland and Uruguay.

Amongst those from foreign countries may be included the following, whose names are particularly connected with the work in relation to tuberculosis:—

Dr. Arloing, Faculty of Medicine, Lyons, France.

Dr. J. George Adami, Professor of Pathology, McGill University, Montreal.

Dr. Bernard Bang, Professor of Veterinary Pathology of the Royal Veterinary School of the University of Copenhagen.

Dr. Buhre, Sweden.

Dr. Calmette, (Professor A.) Pasteur Institute, Paris, France.

Dr. Camillo Calleja, Madrid, Spain, representing the Spanish Government.

Dr. Detre, Budapest.

Dr. Eastwood, Cambridge University, England.

Dr. Johannes Fibiger, Professor of Pathological Anatomy at the University of Copenhagen.

Dr. Lawrence F. Flick, Philadelphia.

Dr. Karl Hamel, representing the Imperial Board of Health, Berlin.

Dr. Heyman, Professor at the University of Ghent, Belgium.

Dr. Ladislaus Hengelmuller von Hemgervar, Chief Delegate, Vienna.

Dr. Joaquin Jacobson, Havana.

Dr. Robert Koch, Berlin.

Dr. G. von Leube, of the University of Munich.

Dr. E. Liceaga, representative of Mexico.

Dr. Louis Landouzy (Professor), Leader of the French Delegation.

Dr. Newsholme, of England.

Dr. Clemens von Pirquet, Vienna.

Dr. R. W. Philip, Edinburgh, Scotland, representing the University of Edinburgh and the Royal College of Physicians of Edinburgh.

Dr. Leonard Pearson, of Philadelphia.

Dr. M. Ravenel, of Madison, Wisconsin.

Dr. Antonio Stella, Italy, representing the General Director of Public Health.

Dr. T. J. Stafford, Ireland.

Dr. Theobald Smith, of Boston.

Dr. Diego Tamayo, Cuba.

Dr. S. Trimescu, Bucharest, representative of the Roumanian Government.

Dr. N. P. Tendeloo, Professor of Pathology at the University of Leyden, Holland.

Dr. John J. Ulloa, Costa Rica.

Dr. A. A. Wladimiroff, representative of the Superior Medical Council of the Russian Empire.

Dr. Theodore Williams, of the Southwest London Association for the Prevention and Relief of Tuberculosis.

Dr. Sims Woodhead, Professor of Pathology at Cambridge University, England.

Dr. F. C. Yen, official delegate from China.

Many interesting papers were submitted, and many interesting addresses delivered and discussions taken part in.

As possibly of exceptional interest, I may cite the system presented to the congress and illustrated by examples, by Dr. Detre, of Budapest, and Dr. von Pirquet, of Vienna, for the diagnosis of tuberculosis in its incipient stages. It consists in the inoculation of the patient's arm at three different points at the same time: first, with Koch's tuberculin; secondly, with a filtrate of a broth culture of human bacillus; and thirdly, with a filtrate of a broth culture of bovine bacillus. Within twenty-four hours, or a little more, the results of the three reactions may be noted. There can be read in-

stantly which type of bacilli caused reaction; whether the infection is an awakened dormant one or of recent contraction; whether the human organism can resist the attack; in short, all the biological properties of the infected organism.

This system seems to promise to be one of great importance; but, like most new things in science, it will require to be confirmed by repeated experiments by other workers.

Possibly the most interesting matter before the congress, and one that led to the warmest discussion, was Dr. Koch's persistent adherence to his views, announced at the congress in London in 1901, when he stated that while he was not prepared to deny the possibility of the communication of tuberculosis from animals to man, he considered that the probability of this happening through the use of milk or meat was so slight as to be a negligible quantity. In fact, he further stated at this congress that 'the few known cases where bovine tuberculosis is said to have produced a general and fatally progressive tuberculosis in man appear to me not to be above suspicion.' In this view Dr. Koch was opposed practically by all the other scientists present, the opposition being led by Dr. Arloing, Professor of the Faculty of Medicine of Lyons, France, one of the leading authorities on tuberculosis in that country, and by Dr. Ravenel, of Madison, Wisconsin, who has written much upon the subject in the United States. The consensus of opinion against Dr. Koch's views was the origin of the epigram: 'Professor Koch isolated the bacillus tuberculosis; the scientific world has isolated Professor Koch.' One of the resolutions finally adopted as the outcome of the congress as a whole recommended 'that preventive measures be continued against bovine tuberculosis, and that the possibility of the propagation of this to man be recognized.'

In connection with the congress, large and complete exhibits of sanatoria, day camps, night camps, and all the various appliances necessary for the treatment of consumptives, both at home and in institutions, were shown from the following countries, departments and associations:—

Argentina, Austria, Belgium, Brazil, Canada, France, Germany, Great Britain, Hungary, Japan, Russia, Sweden, Switzerland and Uruguay.

Department of the Treasury (Public Health and Marine Hospital Service)

Department of War (Army Medical Department).

Department of the Navy (Bureau of Medicine and Surgery).

Department of the Interior (Indian and Smithsonian).

Department of Agriculture (Bureau of Animal Industry).

Department of Commerce and Labour (Census Office).

Government Printing Office.

States of: Colorado, Connecticut, District of Columbia, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, Ohio, Rhode Island, Pennsylvania, Wisconsin.

National Association.

Playground Association.

Journal of Outdoor Life.

Pathological exhibit from the Museum of the University of McGill, Montreal.

Plans, &c., of the Tranquille Sanatorium of British Columbia.

Of the seven sections of the congress, I felt it my duty to attend principally section VI., on State and Municipal Control of Tuberculosis. Before it, many valuable papers were read and discussed on the administrative control of tuberculosis, and the duty of general governments in the registration and prevention of the disease, and incidentally in the desirability of federal organization of health, including the suggestion that as hygiene knows no boundaries, a standing national council should be formed to watch and foster the growth of national health departments.

The joint delegate with me, Dr. Rutherford, Veterinary Director General, devoted most of his attention to section VII., 'Tuberculosis in Animals and its Relation to Man'; and our associate delegate, the Reverend Thomas Hunter Boyd, devoted the

greater part of his attention to section V., 'Social, Industrial and Economic Aspects of Tuberculosis.' These gentlemen will doubtless report to you upon their work in connection with this congress.

A State dinner was given by Secretary of State Mr. Root on the evening of October 1, and your senior delegate had the honour of being present officially thereat; as also in responding for Canada, and conveying for our government their cordial greetings and their farewell at the opening and closing public assemblies respectively.

Dr. Antonio Stella, of Rome, presented to the congress in the name of the King of Italy an invitation to hold the next Triennial meeting of the congress in Rome in 1911, the fiftieth anniversary of the foundation of the National Union of Italy.

The general conclusions of the powers and discussions in all sections seemed to favour the home treatment of consumptives, rather than their being sent away to sanatoria, and to distant health resorts; it being established that the fresh air treatment, with proper diet and rest, could be as satisfactorily carried out at home as elsewhere, and that the home treatment obviated the expense and homesickness incidental to sending patients to distant places; and, in addition, that a cure in the locality where the patient has to live and work is preferable to a cure at a high altitude, from which the return often leads to a recurrence of the disease according to the altered blood pressure at the lower altitudes.

The resolutions formally adopted by the congress were as follows:—

'Resolved: That the attention of state and central governments be called to the importance of proper laws for the obligatory notification by medical attendants, to the proper health authorities, of all cases of tuberculosis coming to their notice, and for the registration of such cases in order to enable the health authorities to put in operation adequate measures for the prevention of the disease.

'Resolved: That the utmost efforts should be continued in the struggle against tuberculosis to prevent the conveyance from man to man of tuberculous infection as the most important source of the disease.

'That preventive measures be continued against bovine tuberculosis, and that the possibility of the propagation of this to man be recognized.

'Resolved: That we urge upon the public and upon all governments the establishment of hospitals for the treatment of advanced cases of tuberculosis; the establishment of sanatoria for curable cases of tuberculosis; the establishment of dispensaries and day and night camps for ambulant cases of tuberculosis which cannot enter hospitals and sanatoria.

'Resolved: That this congress indorses such well-considered legislation for the regulation of factories and workshops, the abolition of premature and injurious labour of women and children, and the obtaining of sanitary dwellings as will increase the resisting power of the community to tuberculosis and other diseases.

'That instruction in personal and school hygiene should be given in all schools for the professional training of teachers.

'That, whenever possible, such instruction in elementary hygiene should be intrusted to properly qualified medical instructors.

'That colleges and universities should be urged to establish courses in hygiene and sanitation, and also to include these subjects among their entrance requirements, in order to stimulate useful elementary instruction in the lower schools.

'That this congress indorses and recommends the establishment of playgrounds as an important means of preventing tuberculosis through their influence upon health and resistance to disease.'

The Bubonic Plague.—Special precautions have been observed throughout the year against the danger of the introduction of this disease into Canada from the United States. In San Francisco the last case of human plague was on January 30, 1908; the last case of rat plague on October 23, 1908. In Oakland, California, the last case of human plague was on July 17, 1908; the last case of rat plague on December 1, 1908.

In Seattle, Washington, the last case of human plague was on October 31, 1907; the last case of rat plague on September 26, 1908.

The whole continent owes a debt of gratitude to San Francisco, not only for averting from the whole country an impending danger, but for affording to other cities a model of sanitary policy and execution. While in her dealings with the first epidemic, San Francisco allowed politics to exert a baneful influence, in the last one the united and awakened community presents the spectacle of politics replaced by enlightened statesmanship; thus she has eradicated from her limits bubonic plague, which threatened to decimate not only a single city but the entire country.

The story is well told in the lately published report of the Citizens' Health Committee. The experience of the city demonstrated two things very clearly: first, the efficiency of the United States Public Health and Marine-Hospital Service in emergencies of this kind; and second, the value of the co-operation of the lay public. Previous to the outbreak of this epidemic the most erroneous notions prevailed regarding the plague. It was said to be a disease affecting orientals only, a filth disease, one due to vegetarianism, a disease which had always existed in Asia, but need not be feared in America.

The first epidemic was confined to Chinatown and was eradicated by rat-proof building. The outbreak of the recent epidemic was from several foci, and the striking fact was ascertained that practically the only part of the city exempt was Chinatown. The disease affected Americans of the middle class, among whom reasonable cleanliness prevailed, and the mortality, although smaller than among the orientals, was sufficiently appalling, viz., 48 per cent.

The work of eradication was a war on the rat. This demanded the starving, poisoning, trapping and destruction by other methods of at least 2,000,000 rats. In order to make the work effective, it was necessary to enlist the co-operation of all classes of the community in making garbage and food supplies rat-proof as well as in the actual capture of the rodents. Not only employers, tradesmen, restaurant keepers, butchers, grocers, teamsters, householders, but even school children were pressed into service to rid the city of rats. Every one was incited to clean up his own premises and to see that his neighbour did the same. Not only were plague-bearing rats hunted out and killed, but an immense amount of work was done in laying concrete sidewalks and foundations, which with other forms of rat-proof building gives reason to hope that the plague will not again gain a foothold in the city.

The investigations of the health authorities showed that the plague among rats continued and even increased after the human cases had disappeared. This fact renders it advisable that rats should be periodically examined for the plague, so that the slightest evidence of recurrence among animals may be met by prompt and energetic measures to suppress the epizootic.

The example of San Francisco should lead other municipalities to meet their sanitary problems in the same united and determined way. Especially the seaports should remember that the introduction of plague is an ever-present danger which should be warded off by efficient measures against rats.

With regard to Seattle, which is so close to our boundaries, the Special Emergency Sanitation Squad, which is carrying on the work of prevention against the bubonic plague infection, is kept busy to the limit of its capacity.

A word in regard to the character of this work may not be amiss. With the limited number of men in this squad it is, of course, not possible to hope to exterminate the rat population of Seattle. It is possible, however, to do a great deal towards keeping it within bounds, and this is being done. The two squads, known as the trapping squad and the poisoning squad, are engaged daily in their work, with most satisfactory results. For instance, in October the poisoning squad used 602 pounds of poison, covered 507 blocks, and placed poison in 7,108 different places. In addition to this work, the men of this squad watch the vessels along the entire waterfront, with reference to enforcing the rules regulating rat guards and keeping boats off from the

docks. This in itself is no small amount of work, and required the inspection of 1,739 vessels and the serving of 34 notices. The trappers work along the entire waterfront, and for the month brought in 2,393 rats. The bounty rats brought in numbered 3,141, giving a total of 5,534.

These rats came from every part of the infected district, and 4,054 of them were examined in the laboratory for evidences of infection. The great importance of this work, aside from the actual destruction of the rats by both traps and poison, is that the department, by the examination of several thousand rats from every part of the infected area, is able to keep close watch on any outbreak of the disease among rats. When an infected animal is found in any one of these places, this place is immediately surrounded by the two squads, and work is kept up until we have reasonable assurance that the infection in this locality is stamped out. By this kind of work, the department is able to give reasonable assurance of freedom from danger from this disease.

Another line of work done by the special squad is to answer calls of citizens and investigate certain districts, localities or houses where rats are abundant. Sixty-four of these investigations were made during the month. In the majority of instances the inspectors find that the trouble arises from the fact that the particular locality complained of supplies an abundance of excellent rat food, usually from a barn or chicken coop. Any region supplying abundant rat food must expect to have a large number of rats present, unless especial precautions are taken, and trapping and poisoning persistently kept up. A good house cat helps out a great deal in these cases, but care should be taken to choose a cat which is really a good ratter.

If each houseowner would do his part by keeping his premises free from rats by the methods mentioned, the department would have comparatively little difficulty in caring for the general situation.

In view of the lapse of time since the last cases of human plague had occurred in San Francisco and in Seattle, the special inspection of passengers and crews from Californian and Puget Sound ports was removed on October 7. The measures for excluding rats, such as breasting vessels away from the piers, guarding mooring ropes by discs, limiting and guarding gangways, &c., are still, however, maintained in force.

The Indian Government has issued a summary of the work of the plague commission, which may be regarded as the most recent and most authoritative pronouncement on the contagion of the disease. The conclusions are as follows: 1. Pneumonic plague is highly contagious, but it is rare (less than three per cent of all cases), and plays a very small part in the spread of the disease. 2. Bubonic plague in man is entirely dependent on the disease in the rat. 3. The infection is conveyed from rat to rat and from rat to man solely by the rat flea. 4. A case of bubonic plague in man is not in itself infectious. 5. A large majority of cases of plague occur singly in houses. When more than one case occurs in a house the attacks are generally nearly simultaneous. 6. Plague is generally conveyed from place to place by imported rat fleas, which are carried by people on their persons or in baggage. The human agent not infrequently himself escapes infection. 7. Insanitary conditions have no relation to the occurrence of plague, except in so far as they favour infection by rats. 8. The non-epidemic season is bridged over by acute plague in the rat accompanied by a few cases in man.

Rats are always a nuisance of the first order, and as carriers of disease a source of public danger. From the standpoint of health they possess no redeeming qualities, and the more quickly a great diminution in their numbers is affected the better it will be for everybody. The Rat Act of Denmark is one of the most remarkable laws in the history of legislation. It is the result of the grim fight carried on for ten long years by one man, Zuschlag, a civil engineer of Copenhagen, against the most merciless ridicule poured out by the Danish press, the galling contempt of scientists, and the lethargy of the people; but in the end he finds himself acclaimed as a benefactor of his country. He is now president of the powerful and influential 'Association Internationale pour la destruction rationelle des Rats,' which has a membership of two thousand men of standing and known influence. In several countries government or

port authorities have adopted Zuschlag's premium system of a national campaign on this principle. In England a society has recently been formed for the destruction of rats, with the support of such men as Sir Patrick Manson, Sir James Crichton Browne, Sir T. Lauder Brunton, Lord Avebury and Professor Simpson. It has been calculated that there are as many rats in a country as there are men, women and children, and that each rat destroys one farthing's worth of food, grain or material per day. At that rate the six million rats of Canada cost us the enormous sum of over thirty thousand dollars per day, nearly $11,000,000 a year. In the United States, damage by rats, mice and rabbits aggregate $160,000,000 each year, it is estimated by the Department of Agriculture experts. It is stated that in England and Wales alone every year rats do damage amounting to over fifteen million pounds, say, $75,000,000.

Japan's war on the Plague.—The plague in Japan first broke out in 1899, the cases numbering 230. The second visitation was in 1902 and 1903, the cases numbering 71. The third outbreak occurred on August 24, 1905. From then until the end of March, 1906, the cases numbered 103. The means employed for fighting the disease are given by the London *Illustrated News* as:—

(1) Collecting and purchasing of rats at five yen a head (or rather body, for the whole carcase has to be delivered). To insure greater activity a ticket is given to every man who brings in a rat. This ticket is numbered, and may draw a maximum prize of 600 yen.

(2) The distribution gratis of rat poison on application. Ten cakes of poison to each house. Delivered to 3,000 houses a day—30,000 cakes of poison at an average cost of about 75 yen a day.

(3) Cleaning of houses and godowns (warehouses).

(4) To prevent rats from reassembling in godowns, extensive repairs are being carried on and all ground floors and walls rendered impenetrable. In connection with this regulation the number of godowns considered in need of repair was 1,616.

(5) The damming of holes in drains to prevent rats getting out. This process was also carried out on the seacoast near the Kobe customs house.

(6) Inspection of patients. Doctors from the sanitary department make a house to house inspection, and where any sick person is discovered carefully investigate the nature of the disease.

(7) Examination of dead bodies.

(8) Injection of anti-plague serum in family of infected patient.

(9) Strict isolation.

The rats killed in Tokio from 1900 to June, 1906, numbered 4,820,000, an average of more than 800,000 a year. The ratio between the number of rats infected and the number of cases serves to prove beyond a doubt that these little animals are the most active disseminators of the disease, and the thoroughness and care with which the inspection is carried on is evinced by the fact that over 100,000 rats may be dissected without finding a trace of infection, yet vigilance is never relaxed.

Never for one instant do the surgeons forget that the very next one may contain microbes enough to depopulate the largest city. The marvellous rapidity with which the examination is done can be imagined when one learns that from 2,000 to 3,000 rats are examined a day, according to the number brought in.

The cakes of poison supplied by the government are made of sweet potato, red pepper and arsenic, and are coloured, with methyl violet, to prevent children eating them by mistake. The cleaning of houses is carried out most thoroughly twice every year, whole streets being taken at a time. Everything is brought out of the houses and piled up in the streets. Dirt, dust and refuse of all kinds are carted away and burned.

Plague in India.—During the present year plague is in abeyance in India and the deaths number only hundreds instead of thousands, but no one can foretell when it may reappear in epidemic form. Since the outbreak in the summer of 1896 the

mortality has been appalling. In that year it began in the Bombay Presidency, where it caused 2,219 deaths, most of them in the city of Bombay. In the following year the mortality rose to 54,000. Then the disease spread inland to other provinces. In 1901 the deaths amounted to 283,000; in 1902, to 584,000, and in 1904, to 1,144,000. In 1905 over a million deaths occurred. In 1906 a great decrease occurred, the deaths falling to a third of those of the previous year. No explanation could be given for this sudden fall, and it was hoped that the disease had expended its virulence. But in 1907 it gained fresh vigour and caused more deaths than ever—1,316,000. Then another lull occurred, and the number fell to 149,000 in 1908. The total deaths for the twelve and a half years since the disease appeared in epidemic form has reached the enormous figure of 6,200,000.

The Bubonic Plague has occurred during this year in Australia (caught in one case from a kitten), Azores, Brazil, China, Ecuador, Egypt, England (Liverpool), East Africa (British and German), Formosa, Hawaii, India, Japan, Mauritius, Peru, Queensland, Russia, South America, Venezuela and Zanzibar.

Asiatic Cholera has occurred during the year in Arabia, Austria, Ceylon, China, India, Japan, Korea, Persia, Philippine Islands, Russia, Siam, Straits Settlements, Turkey in Asia and Turkey in Europe.

In Russia the outbreak began in July and August, principally in Astrakan and Saratov, the disease having been previously absent from Russia since the previous January. Its appearance in the remote southeastern provinces of Russia in July did not attract much sanitary attention. In September, however, when cases began to appear in the neighbourhood of St. Petersburg, the situation was justly regarded as grave.

The cases have since increased alarmingly, not only in the Russian capital but in many other parts of the country. An inspection service in the interest of the United States was established at Libau, on the Baltic, the only Russian port from which emigration takes place to the United States. At Libau, which is connected with St. Petersburg and other infected districts by railroad, intending emigrants are detained in close quarantine for five days. If, after this period of detention, conditions are satisfactory, they are allowed to go into the city and are lodged in various places under observation until their departure. Before embarking, emigrants undergo final examination, and all baggage is disinfected prior to being taken on board. The voyage from Libau to New York lasts from seventeen to eighteen days. Libau has a water supply from artesian wells over 200 feet deep. The last occurrence of cholera at that place was in 1892, when all the members of one family were attacked, but the disease did not spread.

The great mass of Russian emigration is via ports of other European countries whose own interests make them exercise a vigilant surveillance of suspected travellers passing through their gates. Germany's calamitous cholera experience, beginning in 1892 with the sudden appearance of the disease in Hamburg—an important port of departure for Russian emigrants—taught a convincing lesson in regard to the relation of the water supply to cholera. An epidemic causing within ten days of its outbreak 1,000 cases a day is not soon forgotten. This outbreak lasted three years, visiting hundreds of places in that country and threatening the entire world.

At St. Petersburg many conditions exist which favour the spread of cholera when once introduced. The city, built on made ground, is surrounded by a network of stagnant canals, whose water is frequently drunk by the poorer classes. Hamburg's lesson of defiled water supply should be put to practical application at St. Petersburg. The cholera of St. Petersburg was of a virulent type, and the percentage of mortality was high. The disease spread rapidly into the provinces along the Volga, down both coasts of the Caspian and in the territory of the Don Cossacks; in other words, in the eastern and southeastern districts of European Russia. By the end of August there was an average of 1,200 cases reported each week, with a mortality of upward of fifty

per cent. Up to February 22, when the epidemic of cholera in St. Petersburg had lasted for 160 days, 10,000 cases had been reported, with 3,928 deaths. The largest number of new cases reported in one day was 444, the lowest nine. The epidemic has concentrated the attention of the St. Petersburg authorities on the long-neglected task of improving the water supply and sewer facilities of the capital. The sewers now empty into the River Neva or the open canals traversing the city, and the water supply is taken from the river. This in spite of the fact that Lake Ladoga, twenty miles away, offers an abundant supply of fresh water that could be obtained at small expense. The mayor of St. Petersburg, at the instigation of the premier, M. Stolypin, has appointed a commission to arrange for immediate action in these directions. The central government will share a part of the expense.

Smallpox.—This disease has been pandemic almost throughout the year.

The temporary medical inspectors on duty at the beginning of the year at Fort Francis and Rainy River in Ontario, and at Sprague, Emerson, Gretna, Morden, Crystal City, Killarney, Boissevain, Deloraine and Waskada, in Manitoba, on account of an outbreak of smallpox in epidemic form in Minnesota and North Dakota, were released from duty on August 15 last, the outbreak having died down.

Owing to a reported outbreak of this same disease in Newfoundland, your ministerial order, excepting under section 7 of the Quarantine Regulations vessels from Newfoundland and free from infectious disease, from inspection, was suspended by you; and on January 27 a circular letter was sent to your quarantine officers on the Atlantic coast, ordering the routine and careful inspection of all vessels from that island. This inspection is still in force.

Yellow Fever.—In addition to the appearance of this disease in its accustomed haunts, it has broken out in Barbados. A circular letter to your Atlantic coast officers, drawing attention to this fact, was issued on February 17.

Leprosy.—The idea that parasitic insects might play some role in the transmission of leprosy has existed for some time. The brilliant results which have followed the investigation of the role of biting insects in the transmission of malaria, yellow fever, the sleeping sickness, and certain other forms of so-called infectious diseases, have led to speculation upon the possible intermediation of the rat flea (leprosy is a well recognized disease of the rat), the mosquito, the house fly, &c., with regard to leprosy. It is evident, however, that the simple taking up of parasites by an insect does not necessarily imply that the insect plays a role in their transmission from one host to another, other than that of possible mechanical conveyance from one place to another. The data now available do not permit of a positive statement of any such transmission of leprosy as is established for yellow fever and malaria by the mosquito, of the sleeping sickness by the trypanosome-bearing tsetsefly, or of the bubonic plague by the rat flea.

During this year four new cases of leprosy occurred or were discovered in Canada. They were dealt with by you under the Act respecting leprosy. Two of the cases were found at Lameque, N.B., and were removed to the Lazaretto at Tracadie, N.B. The other two cases were Chinese: one found in Manitoba, the other in British Columbia; they were both, with their full approval, deported and sent back to China. They had both been some time in Canada before the disease appeared.

Another case was reported from the General Hospital, Winnipeg, in August last. I made a careful personal examination, and the history and symptoms established the fact that it was not a case of leprosy.

Annual meetings.—In addition to the Congress on Tuberculosis already referred to, I had the honour of presiding over the annual meeting of the Canadian Medical Association in this city, in June last, and of attending the annual meeting of the American Public Health Association held in Winnipeg, Manitoba, in August. Both meetings were largely attended and successful.

Grosse Isle, Que.—Vessels inspected, 379, being 355 at Grosse Isle, and 24 at its substation at Rimouski. Persons inspected, 100,486, being 79,263 at Grosse Isle, and 21,223 at Rimouski. Infectious disease was reported or discovered on 26 vessels. The admissions to hospital were 245. The diseases included scarlet fever, diphtheria, measles, chickenpox and typhoid fever. There were no deaths or burials at the hospital during the season.

The carrying out of the western wharf into deep water, so that infected vessels might come to it for the immediate landing of their passengers, and the prompt treatment and disinfection of the vessel, continues to be a matter that is of the gravest importance in the interests of the passengers and of the shipping. The new steamer *Alice* is a valuable addition to the equipment of the station.

The replacing of the old wooden detention sheds for second class and steerage passengers, which sheds date back from 1832 and 1848, by brick buildings with modern appliances, is more and more urgently pressing each year.

The installation of the Laveuse Disinfecteuse at the hospital is one of the most important improvements carried out this year. New quarters were also provided for the hospital steward.

Halifax, N.S.—Vessels inspected, 292. Persons inspected, 58,018. Vessels arriving with infectious disease, 13. Admissions to hospital, 59. Deaths, 2.

An electric lighting plant has been installed at this station. The steamer *Argus* having been condemned, steps are being taken by your direction to obtain a new quarantine boat in her place.

In addition to work with foreign vessels, eight of the crew of the Canadian Government steamer *Canada* were treated in the quarantine hospital in February and March for smallpox. They all recovered.

St. John, N.B.—Vessels inspected, 151. Persons inspected, 19,931. One case of chickenpox on the S.S. *Lake Michigan* was the only case treated during the year at this station.

The exchange between the lightkeepers' residence and that of our steward has been decided upon, and is to take place on the 15th proximo. This enables us to have our quarantine portion of the island self-contained and separate.

A larger steam sterilizer and deep water wharf continue to be the most pressing needs at this station.

Sydney, N.S.—Vessels inspected, 138. No quarantinable disease found on any of these vessels inspected. In June last the Canadian Government steamer *Tyrian* was allowed to land a patient suffering from smallpox, who was treated at the quarantine station. A case of diphtheria from another coastwise vessel, the steamer *Kamiford,* was also removed to quarantine station, your consent thereto having been given as an action of courtesy and grace.

Louisburg, N.S.—Vessels inspected, 28. No quarantinable disease.

Chatham, N.B.—Vessels inspected, 39. No quarantinable disease.

Considerable repairs and improvements were carried out at this station, as detailed in the report of its quarantine officer, which is annexed.

Charlottetown, P.E.I.—Vessels inspected, 11. No quarantinable disease.

William Head, B.C.—Vessels inspected, 261. Total of crews, 20,424. Passengers, 12,180. Steerage, 13,434. Amongst the steerage passengers, there were 7,629 Chinese and 2,689 Japanese, of whom 694 were women; and 9 Hindus.

Diseases reported by incoming vessels: Smallpox, mumps, measles and dysentery. The *Empress of China* was quarantined in Japan in June, on account of a case of plague, which was found on arrival at Nagasaki. There were only three patients in hospital during the year, one with beri-beri, one with smallpox and one with dysentery.

Victoria, B.C.—Four foreign vessels inspected. No quarantinable disease.

Vancouver, B.C.—Two vessels inspected. No quarantinable disease.

Prince Rupert, B.C.—Dr. Ernest H. Tremayne has been appointed quarantine officer at this port, and has assumed his duties there.

Tracadie Lazaretto, N.B.—There are at present 19 patients. No death occurred during the year. Two new patients were admitted and one former one readmitted. Philip Dignard, a man of 44, admitted October, 1900, was discharged 'cured' in August, 1905, but the disease reappeared recently, and he was readmitted March 17, 1909, blind and suffering. He refused to continue the chaulmoogra oil after his discharge. The disease reappeared in the spring of 1908.

This institution and this department have suffered a severe loss in the death of Dr. A. C. Smith, for so many years in medical charge of this Lazaretto. Dr. Smith, who had been engaged in the care of the lepers since 1865, had been in failing health for some months past, and succumbed to a disease of the heart on the 12th of this month. The department loses in him a faithful and a zealous officer, and the lepers of Tracadie a kind and attentive friend.

Darcy Island, B.C., Lazaretto.—Two lepers were taken temporarily to this station during the year, while arrangements were made for their being deported to China.

Public Works Health Act.—Dr. T. R. Chamberlin, inspector for the territory west of Winnipeg, resigned his appointment on June 1 last. Mr. Chas. A. L. Fisher reports:—

That on his several tours of inspection of the public works of the Dominion during the past year, he has found the medical service given to be more numerous and complete, and the sleeping quarters and board of the men to be fully equal to the very good conditions in that way reported last year; and he states that the year has again been an exceptional one in the almost general non-appearance of contagious and infectious diseases among the men, considering the number that have been employed upon the various public works of the Dominion.

I have the honour to be, sir,

Your obedient servant,

F. MONTIZAMBERT, M.D.,

Director General of Public Health.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 2.

(G. E. Martineau, M.D.)

Grosse Isle, Que., March 31, 1909.

Sir,—I have the honour to submit this my annual report of the St. Lawrence quarantine service for the year ending March 31, 1909.

There were 355 vessels inspected at this station during the year, being an increase of five as compared with the number reported last year. Of this number two only were sailing vessels.

The total number of persons examined was 79,263, being a decrease of 78,096 as compared with last year.

They were divided among the different classes of passengers as follows: Cabin, 3,611; intermediate, 17,538; steerage, 28,071; cattlemen, 891; crews, 29,072 stowaways, 80. There was a decided decrease in the number of stowaways this year.

Infectious disease was discovered or reported on the following vessels arriving at the station, named in the order of their first arrival, with sickness on board: SS. *Corsican, Corinthian, Hesperian, Sardinian, Tunisian, Montezuma, Lake Manitoba, Montrose, Southwark, Montreal, Mount-Royal, Victorian, Kensington, Cassandra, Pretorian, Virginian, Ionian, Sicilian, Empress of Ireland, Lake Michigan, Canada, Mount-Tempte, Lake Erie, Turcoman, Melville and Numidian.*

Patients were landed on forty-six different occasions.

The diseases so discovered or reported were: Scarlet fever, diphtheria, measles, varicella and typhoid fever.

Deaths during the voyage were reported on the S.S. *Corsican, Southwark, Lake Manitoba, Dominion, Roman, Hesperian and Montreal* from the following causes: Heart failure (3), suicide (1), epilepsy (1), overlying (1).

Births were reported on the SS. *Kensington* (2), *Lake Michigan* (1).

Only one person refused to be vaccinated during the season, and that was on board the SS. *Dominion*. The party was landed for the usual period of observation.

There were 245 admissions at the hospital, and we had continually a number varying from 20 to 50 at a time, suffering from different diseases.

There were no deaths nor burial at the hospital during the season.

Quarantine staff.—Dr. E. Belisle continued to be in charge of the Rimouski substation.

Improvements.—The installation of the 'Laveuse Desinfecteuse' at the hospital must be regarded as one of the most important improvements carried out this year.

New quarters were also provided for the hospital steward.

Requirements.—The great deficiency at this station continues to be that of a deep-water wharf, a wharf to which infected vessels could be brought to land their passengers and effects.

A new building is required for the accommodation of the second cabin passengers; also four new buildings: one to be used as quarters by the captain and chief engineer, one for a schoolhouse, one for a laboratory and the other one for a store where to put the provisions, bedding, &c., necessary for the hospital.

The old wooden sheds which date from 1832 and 1848 should be replaced by more modern buildings and appliances.

The Str. *Challenger* which has been condemned since two years should be replaced by another boat.

There are still some other works and repairs necessary, a list of which has been forwarded to the department.

All of which is respectfully submitted.

I have the honour to be, sir,

Your obedient servant,

G. E. MARTINEAU, M.D.,

Medical Superintendent of the St. Lawrence Quarantine Service.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 3.

(N. E. MacKay, M.D., M.R.C.S.)

Halifax, N.S., March 31, 1909.

Sir,—I have the honour to submit my annual report of this station for the year ended March 31, 1909.

The number of vessels inspected during the year just ended was 292, being 12 less than that inspected in the preceding year. During the same period, there were 58,018 persons examined, classified as follows: Cabin, 1,856; intermediate, 9,249; steerage, 25,957; crew, 20,956. The total is less than that in the year ended March 31, 1908, by 11,905.

One of the minor quarantinable diseases was found on board the following vessels, or occurred during their voyages to this port: SS. *Pretorian*, from Glasgow, April 2, 1908, 1 case of chickenpox; SS. *Virginian*, from Liverpool, April 4, 1 case of enteric fever; SS. *Empress of Britain*, April 10, 2 cases of measles; SS. *Canada*, April 10, 1 case of chickenpox; SS. *Tunisian*, April 10, 3 cases of measles; SS. *Southwark*, April 19, 1 case of scarlet fever; SS. *Empress of Ireland*, April 23, 1 case of diphtheria; SS. *Luetson*, Bremen, April 26, 1 case of chickenpox; SS. *Jelungh*, Rotterdam, June 12, 1 case of measles; SS. *Canada*, December 6, 1 case of chickenpox, 2 of measels; SS. *Hesperian*, March 5, 1909, 1 case of measles; SS. *Dominion*, March 6, 2 cases of measles; SS. *Tunisian*, March 20, 1 case of measles.

Sickness other than quarantinable diseases and death occurred on the following vessels: SS. *Pomeranian*, April 9, 1908, 2 meningitis; SS. *Empress of Britain*, April 10, 1 death of pneumonia; SS. *Empress of Ireland*, April 23, 1 death from diphtheria; SS. *Kyandom*, Rotterdam, April 26, 1 death, atelectasis; SS. *Victorian*, 2 deaths from delirium tremens; SS. *Corsican*, December 13, 1 rheumatism, 1 eclampsia; SS. *Empress of Britain*, January 22, 1909, 1 death from pneumonia; SS. *Tunisian*, February 14, 1 pneumonia; SS. *Corsican*, February 27, 1 pneumonia; SS. *Vancouver*, March 22, 1 bronchitis.

There were fifty-nine (59) persons treated at the station hospital during the year, and two deaths occurred: one from scarlet fever, and one from broncho-pneumonia secondary to measles. Both were young children.

An electric-lighting plant was installed at the station last summer, which was much needed and which upon the whole is fairly good.

The steamer *Argus* was condemned in June, and since then we have been doing the work with Messrs. Geo. S. Campbell and Company's tow-boats, and upon the whole they have given very satisfactory service. There is nothing so satisfactory, however,

as having a boat of our own, and it is to be hoped we will be provided with a new one without delay.

An engineer to look after the plant at the station should be appointed without delay, and a capable carpenter who would look after repairs to buildings. He could, if desirable, be made to inspect work under construction there. We need such an officer badly.

Coal sheds should be constructed as soon as the repairs to the wharf are finished. The saving effected in coal would, I am sure, justify the expenditure.

Outside our regular work, we have had under treatment at the station eight of the crew of the C.G.S. *Canada* in February and March for smallpox. They all recovered, and only one of the crew of that ship developed the disease after we took charge of them.

The work of this station was uneventful during the year just ended.

I have the honour to be, sir,

Your obedient servant,

N. E. MACKAY, M.D., M.R.C.S.,

Quarantine Officer.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 4.

(R. C. Ruddick, M.D.)

St. John, N.B., March 31, 1909.

Sir,—I have the honour to submit my report for the year ending March 31, 1909.

Number of vessels inspected, 151. Number of persons inspected, 19,931; classified as follows: Cabin, 621; intermediate, 1,699; steerage, 10,583; cattlemen, 409; crew, 6,609; stowaways, 10.

No vessel arrived with the graver quarantinable diseases.

One vessel arrived with a minor quarantinable disease. The SS. *Lake Michigan* arrived on December 22, 1908, with a case of chickenpox, which was the only case treated during the year at our hospital.

There were 10 deaths reported during the voyage to this port for the year: SS. *Montreal*, 1 death from pneumonia, April 5, 1908; SS. *Empress of Britain*, 1 death from pneumonia, April 7, 1908; SS. *Lake Michigan*, 2 deaths from pneumonia, (1) February 7, 1909, suicide (1) April 20, 1908; SS. *Montfort*, 2 deaths from pneumonia, (1) April 16, 1908, suicide (1) April 20, 1908; SS. *Hestia*, 1 death from heart disease, June 6, 1908; SS. *Sobo*, 1 death from explosion on board, November 9, 1908; SS. *Lake Erie*, 2 deaths from pneumonia, (1) January 20, 1909, suicide (1) March 9, 1909.

The class of emigrants coming to this port this year has been exceptionally good. While we generally look for some of the minor quarantinable diseases on each ship coming in with a large steerage list, especially those from the continent, I may say that this year has been an exception, only one case, of chickenpox, arriving from Antwerp.

We are in much need of a low-water wharf, and a quarantine boat fit for an all-year-round service.

The exchange between the lightkeeper's residence of the Marine Department and the steward's residence of the Department of Agriculture, which has been decided on between the two departments to take place on the 15th inst., is in my opinion a very good move for both departments. It centralizes each department's work here, and makes a complete quarantine, each department occupying different sides of the island.

This change will necessitate considerable new fencing, which when completed will put us in a position which we have been striving for for years. We did quite a lot of fencing the past year, and also some grading, which is still very much needed. By blasting the tops off the boulders and filling in the blasted stone in the hollows quite a level surface could be made on the island.

I have the honour to be, sir,

Your obedient servant,

R. C. RUDDICK, M.D.,

Quarantine Officer.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 5.

(H. Rindress, M.D.)

North Sydney, N.S., March 31, 1909.

Sir,—I have the honour to submit my report for the year ending March 31, 1909.

During this period there were 138 vessels inspected at this port. Of these, 117 were steamships and 21 sailing vessels. No quarantinable disease was found on any of these vessels inspected. The D.G.S. *Tyrian* arrived here from Halifax on June 10, 1908, flying a yellow flag at the foremast, and on boarding her I found one of the crew suffering from smallpox. The patient was subsequently removed to and treated at the Point Edward station, with the consent of the department. There was also a case of diphtheria discovered on another coastwise vessel, the SS. *Kamjford*, which arrived here on December 21, 1908, and was later removed to the quarantine station, with the department's permission.

The milder infectious diseases found on ships inspected have been from time to time mentioned in my weekly reports.

By the authority of the Minister of Agriculture, exemption from inspection of vessels from Newfoundland was raised on February 1, 1909, owing to an epidemic of smallpox there. The SS. *Bruce*, running regularly between North Sydney and Port aux Basques, has been inspected every trip, and all passengers are required to furnish satisfactory evidence of recent vaccination.

I have the honour to be, sir,

Your humble and obedient servant,

H. RINDRESS, M.D.,

Quarantine Officer.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 6.

(Freeman O'Neil, M.D.)

Louisbourg, N.S., March 31, 1909.

Sir,—I have the honour to submit my annual report for the year ending March 31, 1909.

The total number of vessels inspected at this quarantine station for the year just ended was 28, with a total number of 917 men.

No quarantinable disease of any kind was brought to this port during the year. Owing to the late season in North Sydney, not so many foreign vessels called at this port as in some former years.

I would again beg leave to suggest the urgent need of some provision being made to provide and equip this station with the necesssary buildings and wharf, suitable to the requirements of the port. The necessity of this was strongly shown this winter when quarantine was established between Newfoundland and this port. Also that some suitable arrangements be made to provide a boat for boarding vessels.

I have the honour to be, sir,

Your obedient servant,

FREEMAN O'NEIL, M.D.,

Quarantine Officer.

The Honourable

The Minister of Agriculture,

Ottawa.

No. 7.

(Peter Conroy, M.D.)

Charlottetown, P.E.I., March 31, 1909.

Sir,—I have the honour to submit my report for the year ending March 31, 1909.

There was no contagious disease on any vessel arriving at this port during the past year.

The traffic with this port comes mostly from points within the line of exemption. There was an outbreak of smallpox in Nova Scotia during the past year; but no case occurred within this province.

There were eleven inspections made of vessels from beyond the sea. One death occurred from beri-beri on board the barque *Usko* from Spain; burial took place at sea.

The hospital quarters are now in a suitable state of preparedness, thanks to the various repairs and improvements made, and to the good grace of the department in freely supplying our every need. During the past summer a new and more commodious pantry was added to the kitchen appointments of the hospital.

All of which is respectfully submitted.

I have the honour to be, sir,

Your obedient servant,

PETER CONROY, M.D.,

Inspecting Physician.

The Honourable

The Minister of Agriculture,

Ottawa.

No. 8.

(J. Baxter, M.D.)

Middle Island, Chatham, N.B., March 31, 1909.

Sir,—The end of our year having arrived, I beg leave to report concerning the work of last season as follows:—

The work that was stopped the fall before on account of frost was finished last spring as soon as conditions permitted, viz., the bathrooms in both hospitals. Connections were made from the force pump in the keeper's house, and everything works perfectly satisfactorily.

A new wharf was built in front of the keeper's house for landing from the boats, or rather a landing stage, with two permanent stone filled abutments. A bathroom was put in the keeper's house, with a sink, hot and cold water and a new range in the kitchen. A sewer drain of tiles laid in cement was carried from the house to the river at the low water line 276 feet, and works excellently. A few other improvements have been made which will render the station much more effective in future.

Number of vessels inspected, 39. Steamers, 20; barks, 16; three-masted schooner, 1. Number of men examined, 766.

I have the honour to be, sir,

Your obedient servant,

J. BAXTER, M.D.,

Quarantine Officer.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 9.

(A. T. Watt, M.D.)

Victoria, B.C., March 31, 1909.

Sir,—I beg to submit this my report of transactions at the William Head quarantine station for the twelve months ending March 31, 1909.

During this period there were 261 vessels inspected. The members of the crew numbered 20,424, and the passengers were 12,180 cabin, and steerage 13,434. There were 5,953 Chinese and 2,475 Japanese members of crew. Other Asiatics numbered 276. Amongst steerage passengers there were 7,629 Chinese, and 2,689 Japanese of whom 694 were women, and there were 9 Hindus. The majority of Chinese were for Canadian ports but the greater number of Japanese were bound for United States ports. The Hindu immigration which reached considerable volume in previous year has during last twelve months practically ceased. A new feature in the immigration to this coast this year seems to be looming up. This is seen in the arrival of small parties of Russian immigrants, the largest being a party of 50. It is reported that other parties are preparing to come; so there will be still another class of people to be dealt with in quarantine.

All Asiatic steerage passengers and members of crew before departure from China or Japan ports have gone through the routine disinfection or else were given disinfection on arrival at this station. Six vessels were disinfected here.

The passengers of the SS. *Peleus*, on which smallpox had occurred at Kobe, were held for completion of quarantine period from date of disinfection by Japanese authorities. Another vessel of same line, the SS. *Oanfa*, had an outbreak of smallpox en route and was disinfected at Singapore. The outbreak was amongst pilgrims being carried to that port. There were 7 cases with one death. The SS. *Empress of China* was quarantined in Japan on account of plague which was found on arrival at Nagasaki in June, but only the one case occurred. Other sicknesses occurring with vessels en route here were: mumps, measles and dysentery, but all were convalescent except one patient with dysentery. This was the only patient in hospital with the exception of one case of smallpox and another of beri-beri, which were in hospital at the beginning of the year and were from vessels arriving in previous months. This year, therefore, has been the least eventful year for many years past, and may be attributed to absence of any great epidemic in the Orient and to the fewer number of passengers arriving and the consequent lessened chance of infection being brought.

The cities of San Francisco and Seattle, where plague was present in previous year, were this year free from this disease, although an occasional rat was found to be affected with disease. None, however, have been found for several months. Precautions against rats getting on shore in our ports are still continued in the case of vessels arriving from these cities. There has been no smallpox in epidemic form in any of the neighbouring States and no quarantine on such account has been called for.

The improvements and repairs undertaken at the station during past year have been quite extensive. Most of the buildings at the station were painted on outside and some work done inside as well. The renewal of stringers and planking of top of deep-water wharf was completed. The old boathouse was placed in a better position, and a suitable house made for housing launch only. A new engine was put in launch and has given every satisfaction. The intake of water service pipe at quarantine lake was overhauled and a better arrangement of settling basin and screens was effected. Steam steering gear, also steam reversing gear have been installed on steamer *Madge*. These have much facilitated the quick handling of the steamer when boarding vessels. A modern sulphur di-oxide plant has been purchased and is now being put in place on wharf. The new cylindrical steam sterilizing chamber is also in course of installation. The steam chamber should have been in working order several months ago, but when it was partially completed a fire took place at the Victoria machinery depot and destroyed several castings and burned the patterns, so there was great delay in getting the work completed. An examination of this chamber after the fire made manifest that should such a fire take place in the disinfecting building at station the disinfecting plant would be rendered useless for several weeks or for the period required to effect renewals of parts damaged. The making of the disinfecting building fireproof is therefore to be looked forward to. This work was in part undertaken over a year ago, but until the new chamber is in place the continuance of this work cannot be gone on with.

Since Dr. Anderson's resignation twelve months ago as medical assistant and bacteriologist at this station, Dr. A. E. McMicking has been acting assistant and bacteriologist, but he has had only routine duties to perform.

The Darcy Island lazaretto has been used for the temporary detention of two cases of leprosy during the year. One case was a Chinese laundryman in Austin, Manitoba, and I proceeded there last May and made arrangements for the transportation of this man to the coast and later secured passage for him to Canton. The other case was a Chinese vegetable gardener from near New Westminster, B.C., and after a short stay at Darcy Island he also was returned to China. A third case was re-

ported recently, a Chinaman from a whaling station, but this man has been lost sight of and has probably found his own way to China.

I have the honour to be, sir,

Your obedient servant,

A. T. WATT, M.D.,

Superintendent B. C. Quarantines.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 10.

(R. L. Fraser, M.D.)

Victoria, B.C., March 31, 1909.

Sir,—I have the honour to submit my report for the year just ended.

Foreign coasting vessels were exempt from inspection during the year. Precautions were taken to prevent rats landing from steamers from Seattle, where bubonic plague had appeared.

During the year I examined four foreign vessels and found no quarantinable disease on any of them. These were examined in May, 1908, during Dr. Watt's absence in Winnipeg on public health duty.

I have the honour to be, sir,

Your obedient servant,

R. L. FRASER, M.D.,

Quarantine Officer.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 11a

(L. N. Mackechnie, M.D.)

Vancouver, B.C., March 31, 1909.

Sir,—I have the honour to submit my report for the year just ended.

Two vessels have been inspected at this port. No case of infectious or contagious disease has been found.

I have the honour to be, sir,

Your obedient servant,

L. N. MACKECHNIE, M.D.,

Quarantine Officer.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 11b.

(Sister L. Légère.)

Lazaretto, Tracadie, March 31, 1909.

Sir,—I have the honour to submit the annual report of the Tracadie Lazaretto.

We have at present 19 lepers in our institution—11 males and 8 females. Four are in the first stage of leprosy, 11 in the second and 4 in the third or final stage. Fourteen of our patients are of French, 2 of English, 2 of Icelandic and 1 of Russian origin. Their ages vary from seven to seventy-seven years. Two new patients were admitted during the year—a mother and son. The patient, a man, discharged as cured in October, 1905, returned to the Lazaretto March 17, 1909, symptoms of the malady having reappeared on him with complete loss of eyesight. He discontinued taking the chaulmoogra oil after he left the institution, contrary to the orders of our physician, and the disease began to resume its usual course in June, 1908.

Our other patients are still using the chaulmoogra oil, and with benefit.

During the last illness of our regretted doctor, A. C. Smith, Dr. A. J. Losier was requested by him to attend the Lazaretto regularly, and all possible was done to alleviate the sufferings of our dear lepers and to improve their condition.

I have the honour to be, sir,

Your humble servant,

SISTER L. LEGERE,

Superintendent.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 12.

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS.

Washington, D.C., September 28 to October 3, 1908.

(Rev. Thomas Hunter Boyd.)

Waweig, N.B., March 31, 1909.

Sir,—I have the honour to submit a brief report of the proceedings at the Congress on Tuberculosis, held in Washington, September-October, 1908.

My attention was devoted chiefly to the work of the section on 'Hygienic, Social, Industrial and Economic Aspects of Tuberculosis,' and the section on 'State and Municipal Control of Tuberculosis.'

The full text of the entire proceedings is now being prepared by the secretary-general, Dr. J. Fulton, and will shortly appear in four large volumes. Meantime, certain impressions are herein submitted as supplementary to those given by members of the medical profession in Canada. The most cordial welcome was extended to lay-

men in this congress, as it is now universally recognized that the intelligent and hearty co-operation of all classes is extremely desirable.

The registration for Canada included fifty doctors, all parts of the Dominion being represented, except the maritime provinces.

A PEACEFUL WARFARE.

The Canadian delegates convened during the progress of the congress and considered with much care the agencies at work in this country, and the requirements for prosecuting the attack on this terrible scourge with more vigour and uniformity. Extremely valuable contributions were made by several Canadians to the various sections of the congress, but the Dominion as a whole was not well represented in the exposition which was in progress during the sessions of the congress. Some countries, e.g., Ireland, Germany, Sweden, and certain states, e.g., Massachusetts and Colorado, had prepared volumes which set forth in an exhaustive and beautiful manner the work that has been done by their respective governments.

The problem of controlling tuberculosis in its varied forms, human and animal, is so vast and so varied, that not a few countries now perceive it has become a kind of standard by which they may be judged in the eyes of the world. Since 1882 it has happily been possible not only to reduce its ravages, but in doing so the conditions have been changed which contributed largely to certain other causes of mortality.

This crusade has served to strengthen the social sense of citizens in every country in which it has been wisely conducted, and it has become not only a national unifier but has helped to federate the world. Indeed, we may confidently assert that this effort to employ all available resources of science against an insidious and deadly foe has proved to be a great peace factor amongst the nations. In ordinary warfare of the old type the secrets of campaign were jealously guarded, but in this international attack against the enemy of hearths and homes, there is a rivalry to contribute to the common stock of knowledge for the welfare of mankind.

THE STRENGTH OF THE ENEMY.

The preparation of statistics in regard to prevalence and treatment of tuberculosis has not been undertaken on account of curiosity, or a desire to create favourable impressions upon neighbouring countries. A fundamental step is taken when a nation determines the extent and character of this disease. Much requires to be accomplished in Canada in this respect, in order to bring out the true condition of affairs.

Till recently, the maritime provinces have been lacking in data, but vital statistics are now forthcoming from Nova Scotia and Prince Edward Island. It would be a greater service if uniform nomenclature could be adopted in the provincial registers in all deaths due to the varied forms of tuberculosis. Each province could then compare its finding with the Dominion census, and with the prevalence in other provinces. There is a very important note by the census commissioner in Vol. IV., p. 228 (1901), which shows that our mortality returns are not full. From this we may probably conclude that the disease is more prevalent than is generally supposed. But if the mortality returns are incomplete we may experience even more difficulty in securing exact information about living cases. This is an essential step, however, and legislation and organized effort towards this end must be secured as speedily as possible. Either voluntary or compulsory notification will help to develop the hygienic sense of the nation, and in due time as this becomes more uniform and effective it will be possible to issue reports that will enable communities to gauge progress and forecast needs. Municipalities could then learn from each other's experience, and the central bureau of statistics could analyse the whole in respect of conditions as to climate, altitude, urban and rural, nationality and industry. Canada could thus contribute

still further to the world's knowledge on this subject, owing to our great variety of races and occupations. But there would be an immediate practical gain for ourselves. By this means we should learn the chief sources of infection, and efforts could be concentrated on danger centres until they cease to exist.

THE PLAN OF CAMPAIGN.

The presence of official representatives from nearly forty nationalities at the congress indicated that already it is recognized that no country liveth to itself. During the past few years there have been earthquakes and other calamities which have called forth the sympathy of the whole civilized world. The response has been prompt and generous, indeed repression has in some instances been manifested. It has not been so easy to awaken the public conscience to the havoc wrought by this disease, but it is now alert. We are interested in racial susceptibility because even if very few persons escape the rigours of examinations to which immigrants are subject, we know that under certain conditioins the descendents may differ in degree of immunity. The facilities of travel, the frequency of migration, and the interchange of articles of diet have all served to make us more observant of conditions in other lands which tend for or against the prevalence of this disease. International congresses have fostered this interest, and the most remote village now has the aid of the most eminent physicians, investigators, public officials, sociologists and philanthropists. A local board of health can work under the direction of those who have made a comparative study of regulations and methods, and in some notable instances issues its directions in a score of languages. This presents possibilities of economy, and what is more important a higher percentage of curable patients. It will soon be true that each nation will have the tuberculosis which it deserves. Already we have more knowledge than is put to effective use. Already it is evident that the suppression of this foe to public welfare must not be left to the good but intermittent attacks of single communities and zealous individuals. If one patient is to learn from another already cured, one government must profit by the experiments of another, and it will soon be deemed as culpable to refrain from well directed efforts to ensure and maintain the highest all round efficiency of each individual, as formerly not to have the latest armament.

OUR ALLIES.

Striking evidence of the recognition of many governments that the health and efficiency of their people is an asset of prime importance was displayed in the Washington exposition and congress. They deputed many of their most distinguished scientists to attend the sessions, and forwarded most valuable exhibits. The federal government of the United States made most generous appropriations towards the cost of the undertaking, and not a few of the state and municipal governments were eager to take their part in affording hospitality for the visitors. The leaders of the American forces recognized that they had to fight not only a germ, but apathy. They succeeded in appealing to the imagination of the nation, and already very marked results have followed. Measured by dollars, it is a fact that in 1908 the United States expended over a million in the campaign against tuberculosis. Never before in its history have so many movements co-operated, and a considerable number of dispensaries and sanatoriums have been opened in the past few months.

This wave of interest has also in a large measure been felt in the Dominion, and there are signs of activity that are extremely gratifying to those who have been appalled by the high mortality from a preventable disease in a somewhat sparsely settled country.

It is a duty we owe to the incoming thousands, that when we so carefully exclude undesirable immigrants those who are allowed a welcome should not discover fewer

guarantees for their protection than they enjoyed in the congested centres they have forsaken.

It is increasingly true that those who come to us from Britain have been instructed in many ways concerning the disease, and they have been subject to the regulations imposed for its prevention.

The same conditions now obtain in many European countries, and if the necessary measures are adopted by the various legislatures these persons can doubtless be counted upon to assist materially in making them effective. Our Imperial equipment for warfare is known to every Canadian school-boy, but not all adults even are aware of the triumphs of our leaders in public hygiene. Thousands of our newcomers have learned with pride that the mortality from this cause has been considerably reduced in the Old Land, and look with perplexity upon provinces that can scarce tell if their records are increasing or decreasing. Other governments in any event are training our future allies.

THE METHODS EMPLOYED.

The congress afforded an opportunity for comparative study of methods employed for accelerating the decline in the death-rate from tuberculosis. It was a kind of clearing-house for the nations, and whilst one of the chief results appears in the inspiration for more determined effort, it also served as a corrective. Whilst each country has afforded a trial to all the approved methods, usually some special agency appears to have been commended. This is largely due to the fact that whilst tuberculosis is a germ disease, it is also a social, economic and industrial problem. Possibly this is why some assert that it is not so much a disease as a condition. It is significant that public opinion has materially changed in this respect. So long as it was regarded as hereditary, effort was paralyzed. Since the discovery in 1882 by Dr. Koch of the tubercle bacillus, attention has been largely directed towards the germ. Now the positive factors are receiving attention. Efforts are being made to increase the resisting powers of the population by securing a higher standard of living, with a wider observance of sound hygiene. It is therefore a great educational movement.

Urban populations are devoting increased attention to rural affairs because of their dependance upon agricultural sections for meat and milk. Rural districts are interested in city problems because the congested districts are danger centres to which their youths are introduced, and whence they frequently come to spend their last months of decline, and not infrequently extend the danger. Increased restrictive sanitary regulations are being framed and made effective in every progressive country. England has persisted in the use of isolation hospitals for half a century, and the policy has been amply justified. Scotland has adopted the tuberculosis dispensary system on an extensive scale. Ireland has secured very marked results by the use of travelling educational exhibitions.

Throughout the British Isles increased accommodation is being furnished in sanatoriums; and notification and registration of all cases is being enacted.

Germany has a complete network of sanatoriums, and has developed a remarkable system of insurance.

Denmark is giving most thorough attention to prophylactic measures in dwellings, and the meat and milk supply.

A CO-ORDINATING CENTRE.

One beneficial effect of this crusade in many large cities has been found in the harmonizing of numerous agencies that overlapped in their operations. It was evident that not every case where theoretic cure was possible was practically curable. The chief problem to be confronted was the management of dependent families where the main cause of dependence is tuberculosis. An economic cure had to be furnished

even where a pathologic cure was not certain. The result has been that we now have combined medical and social investigation. There is now increased co-operation of health, school, civic and other authorities. We have not only the sanatorium for incipient cases, the dispensary for moderately advanced, and the isolation hospital for advanced, but Canada has furnished an instance of the preventorium for persons who are in the condition of physiological poverty, and provision is also being made to guard against relapse of patients who have been cured, by securing light occupation or other means.

Sanatoriums are still required, but the number of persons who can hope to gain admission will never be very considerable. The sanatorium should be the antithesis of the danger focus. It should be the co-ordinating centre for the municipality, or group of counties, or the province as the case may be. Its function is not precisely the same as it was in 1882, or at any earlier date. Dr. George Bodington, of Birmingham, England, was confident that sanatorium treatment would cure pulmonary tuberculosis, and unfortunately was hindered by hostility in giving adequate proof. The impetus of Dr. Koch's discovery is seen by examining the maps of Germany displayed at the congress, which are dotted over with sites of sanatoriums. There is now no doubt as to cure being theoretically possible; the only doubt is whether such effective co-ordination can be achieved as will ensure the practical possibility. The governments are in touch with many of the problems lying at the root of tuberculosis, and to them we must look for co-ordinating measures amongst their several departments analagous to those now taking place amongst the factors of municipal administration. Tuberculosis calls for more thorough-going confederation.

TO EVERY MAN HIS WORK.

If our people were asked to furnish money and men for defence against a foreign foe the outcome is certain. If we can only succeed in convincing every person in Canada that the menace to our national welfare is sufficiently alarming, and also make it clear that this is not like any other disease, as though it was the sole concern of the doctor and health officer, but the symbol for a condition of affairs that it behooves every loyal citizen to assist in removing, we trust the response will be equally patriotic. We must be prepared to assign its proper task to every factor in our complex life. The medical profession now have at their disposal improved methods of detection. Increased emphasis is being placed upon the right of each occupant to a fair share of wholesome water, untainted air, abundant sunlight and worthy occupation under healthful conditions. We are better able to secure a maximum of cures, in less time, and at less cost. It is increasingly evident that that responsibility cannot be wholly placed upon governments of any kind. The individual must refrain from increasing danger to others, and learn to protect himself by maintaining natural immunity. Disease knows no boundaries, and hygiene should be equally widespread. Efforts have long been directed towards securing more bushels per acre, and more milk per cow, and have merited considerable success. We must be equally enthusiastic, and just as ready to recognize biological laws in seeking to secure greater all-round efficiency for every individual. There are many encouraging factors. Our people are of hardy stock, we have few congested centres, the majority of our men are engaged in healthful pursuits, and our educational system covers the land.

Various agencies have been zealously engaged for some time in operations for prevention and cure. We need more sunlight and proper ventilation in the average home; possibly the evolution of a typical Canadian home is even now only in progress. Some cities and towns have far too few public baths and playgrounds; and many public buildings and schoolhouses are not arranged so as to reduce infection to a minimum. Much can be done to reduce our infant mortality, and thus indirectly improve every branch of animal husbandry.

PLANS FOR THE FUTURE.

The congress avowed that some conclusions had been reached in the knowledge of the disease, and the methods of dealing with it, and these facts are fast becoming public property. But many problems still await solution, and it is much to ensure a concerted plan for their investigation in the laboratories of the world. Other problems scarcely less perplexing will receive attention in committees and council chambers. Much adjustment is required to perfect the action of various bodies that are concerned with the public welfare.

In the United States there is a difference of opinion as to the function of the federal government.

In Canada, the provinces are dealing with the problem, but there has been no far-reaching concerted action. There is room for difference of opinion as to the functions of the related governments, very much as there is in the United States, but the feeling is growing that the human constitution is greater than the written constitution. Most of the diseases contemplated in health acts can be dealt with by local authorities; but this problem merits the united consideration of all the provinces under the guidance, or with the co-operation of the federal authorities.

The statute-books of all the nations have been amended in the light of discoveries that relate in some way to the prevalence of tuberculosis and its decline. Even if the framers of the British North America Act had given more than scant attention to matters of health, it was then quite impossible to foresee a line of action that has only become visible by the combined energies of all the scientists and statesmen of the world. Some countries are dealing with the matter through a central health bureau; in some instances combined with a national laboratory, or permanent museum devoted to the collection and display of all possible data, and the training of investigators and lecturers.

Commercial supremacy is founded ultimately upon industrial superiority, and in the rivalry and emulation of nations it behooves us to conserve the health of our people even more than our resources. It cannot be too frequently insisted that in our land, devoted as it is so extensively to all branches of husbandry, we are deeply involved in the condition of our animals. Every step that is taken to make them more vigorous and productive is a gain to their health, and the health of those who tend them or feed upon their product. Anti-tuberculosis measures are therefore very powerful humane instruments.

SUGGESTIONS.

After a careful survey of the material pertaining to the sections of the congress, which considered the sociological aspects of the anti-tuberculosis movement, the following suggestions have been arrived at:—

(1) The preparation of special statistical material, from the department of the census, marine hospitals, reformatories and other institutions, inspection of immigrants, quarantine and food inspection, which will throw any light upon the prevalence of tuberculosis, or conditions in anywise related to it. This may be made the nucleus of a Canadian exhibit, which could be placed within reach of the members of all the provincial legislatures, possibly to itinerate amongst the several houses where the legislatures meet, and furnish a basis for mutual comparison and augmentation. Subsequently this could be displayed in the larger municipalities, and after local analysis returned to the federal authorities. A conference between the federal and provincial authorities would then be likely to achieve very much more than could otherwise be hoped for without antecedent and thorough-going investigation.

(2) This process would be educative for all. It would help to determine if a national bureau or tuberculosis commission are desirable. It would help to unify and strengthen provincial action, and indicate where federal aid is specifically required,

and it would help to ensure that in Rome, 1911, the Dominion will be in the front rank in the movement for world-wide betterment.

All of which is respectfully submitted.

THOS. HUNTER BOYD,
Waweig, N.B.

The Honourable,
The Minister of Agriculture,
Ottawa.

No. 13.

(Chas. A. L. Fisher, J.P.)

March 31, 1909.

Sir,—I have the honour to submit this my report for the twelve months ended March 31, 1909, as Public Works (Health) Inspector.

The term has again been an exceptional one, in the almost general non-appearance of contagious and infectious diseases among the men, considering the number that have been employed on the various public works of the Dominion, there being no serious outbreaks of smallpox, and only one case of diphtheria, but in the neighbourhood of Kenora, Ont., and immediately east of the Winnipeg river, there have been a good many cases of typhoid fever in the camp hospitals.

I am pleased to be able to report again, that on my several tours of inspection of the public works of the Dominion for the past year, I found the medical service given to be more numerous and complete, and the sleeping quarters and boarding of the men to be fully equal to the very good conditions in that way reported last year.

The following is a detailed report of the works during the past twelve months, as coming, more or less, under the regulations of the Public Works (Health) Act, 1899:—

RAILWAYS.

The number of public works coming under the regulations of the Act have been comprised almost exclusively of railway construction, the building of the National Transcontinental Railway, from Winnipeg to Quebec city, but more especially the opening for traffic of the Grand Trunk Pacific Railway, from Winnipeg to Edmonton, adding greatly to the railway mileage of the Dominion, and opening out a fine tract of agricultural land for immediate settlement.

Canadian Pacific Railway.

Main Line.—Changing of grade between Laggan and Field, B.C. This work was done by the company; about 65 men were employed, who were housed and boarded in box cars. There was no serious disease, the health of the men and general conditions being good. The local doctor from Laggan attended the men when necessary.

Crowsnest Line.—Lethbridge to Macleod, Alberta, change of road about 31 miles. miles.

J. McDonald, contractor. About 100 men were employed, who were housed and fed in box cars. There was no serious disease and the general health was good. The medical attendance was from both Lethbridge and Macleod, with use of General Hospital at former place.

Moosejaw Branch.—Tugaski to Outlook, Saskatchewan, 55 miles. J. D. McArthur, of Winnipeg, was the chief contractor. Dutton & Timson, Winnipeg, sub-

contractors. About 500 men were employed, and located in twenty camps distributed along the route, being housed and boarded in tents by the sub-contractors, and the camps moved about once a month. There was no contagious or infectious disease, and no deaths, the general health and sanitary conditions being good. The water was obtained from wells, and latrines were provided. L. C. Panton was the chief medical officer, and resided at the work. The General Hospital at Moosejaw was used when necessary. This work is now completed.

Kirkella Branch.—Strassburg to Lanigan, Saskatchewan, about 54 miles. Mr. Lamb and the British Columbia Construction Company were the contractors. About 200 men were employed, who were housed and boarded in shacks and tents by the sub-contractors.

There had been no serious disease or deaths, the general health and sanitary conditions being fairly good. William Black, M.D., of Winnipeg, was the chief medical officer, with Dr. Kidd, of Lanigan, as district medical officer, who has a hospital and nurse at Lanigan. This work is now completed.

Connecting Link.—Bredenbury to Esterhazy, Saskatchewan, about 20 miles, connecting the Manitoba and Northwestern branch with the Pheasant Hills branch. About 100 men were employed, who were housed and boarded in tents by the contractors. The general health and conditions were good, there being no serious disease. The local doctor from Esterhazy was in attendance.

Extension of the Manitoba and Northwestern Branch.—Sheho to Lanigan, Saskatchewan, the junction with the Pheasant Hills branch, about 60 miles.

J. G. Hargrave was the chief contractor, who sublet to various parties. About 175 men were employed, who were housed and boarded in tents. The general health had been good, although slough water was being used. Dr. Kidd was the district medical officer, under Dr. William Black.

Wolseley-Riston Branch.—Wolseley to Kaiser, Saskatchewan, about 24 miles. J. D. McArthur was the contractor.

About 125 men were employed, who were housed and boarded in tents. The general health was good. Dr. Cook, of Wolseley, was the district medical officer. This work is now completed.

Weyburn-Stoughton, Saskatchewan, Link.—About 25 miles, connecting the Regina and Moosejaw lines. About 75 men were employed, who were housed and boarded in tents.

The general health and conditions were good. Medical attendance was supplied from Weyburn, Saskatchewan. This work is now completed.

Wetaskiwin Branch.—Extension from Hardisty, Alberta, to near Saskatoon, Saskatchewan, about 48 miles.

J. D. McArthur was the contractor, who lets to several sub-contractors.

About 150 men were employed, who were housed and boarded in tents. The general health of the men was excellent, and the conditions of the camps good.

Hospital tents were provided, and medical attendance given by Dr. Parkman at the eastern end, and Dr. N. D. Mather at the western end.

Broomhill Branch.—Lauder to Tilston, Manitoba, about 29 miles. Some 170 men were employed, who were housed and boarded in shacks. The general health was good and the sanitary conditions were fair. Local doctors were in attendance. This work is now completed.

Winnipeg-Teulon Branch.—Teulon to Komarno, Manitoba, about 20 miles. The Canadian Pacific Railway Company were doing this work by day labour, about 70 men being employed, who were well housed and boarded by the company.

The general health and conditions were good, the men being under the charge of a local doctor from Teulon. This work is now completed.

Double Tracking.—Winnipeg, Manitoba, to Port William, Ontario. About 2,000 men were employed, who were housed and boarded in shacks and box cars, distributed along the line. The general health and conditions were good, there being no contagious disease, but quite a few cases of typhoid fever. There were also a few deaths from accidents.

Most of the work during the past twelve months being in the neighbourhood of Kenora, Ontario, the two hospitals at that place were used when necessary. W. J. Gunn, M.D., of Kenora, was the chief medical officer, with three assistants under him. Messrs. Foley, Welch and Stewart were the contractors. This work is now completed.

Toronto-Sudbury Branch.—From Craighurst to Sudbury, Ontario, about 173 miles. About 200 men were employed, who were housed and boarded in shacks and box cars by the company.

There had been no contagious or infectious diseases, quite a few minor accidents, but no deaths.

The general health of the men had been good. The water supply obtainable was poor, even from wells.

Latrines were supplied, and the sanitary conditions of the camps were good.

There was a permanent hospital established in a central locality, under charge of R. B. Struthers, M.D., who was the district officer of the work.

This work was completed early in the season.

Walkerton-Lucknow Branch.—From a point on the Canadian Pacific Railway, near Proton, Ontario, westerly to the town of Walkerton, Ontario, a distance of 37½ miles. Messrs. Macdonald & Stephen, of Durham, Ontario, were the contractors. About 400 men were employed, who were well housed and boarded by the contractors.

There had been several serious accidents, and one death. The general health of the men and the sanitary conditions had been good.

The Walkerton General Hospital, and the Royal Alexandra of Fergus, were used when necessary. Drs. Jamieson and Maclaurin, of Durham, Ontario, were the district medical officers.

This work is now completed.

Georgian Bay and Seaboard Railway Branch.—From near Coldwater, Ontario, to a point on Hogg bay, Victoria Harbour, Ontario, about 14 miles, which is under contract to the Toronto Construction Company, of Toronto, and sublet to Messrs. Corbett & Gimlet, of Victoria Harbour.

About 100 men were employed, who were well housed and boarded by the subcontractors.

There had been no serious diseases, accidents or deaths, the general health of the men and the sanitary conditions good.

The hospital at Midland, Ontario, was used when necessary. William B. Boyd, M.D., of Coldwater, Ontario, was the district medical officer of the work.

This work is approaching completion.

Canadian Northern Railway.

This company has had under construction during the last twelve months, in Manitoba and the Northwest, ten extensions to its lines in different districts thereof, which goes to show the general development of the country.

There were no contagious or infectious diseases at any of these works, with the exception of eight cases of typhoid fever, and the general health of the men was excellent. The medical service on all construction work was under the supervision of Doctors Mackenzie and Mackenzie of Winnipeg.

Messrs. Mackenzie, Mann & Company, Limited, Toronto, were the chief contractors for all work.

Brandon-Regina Line, 220 miles, which was under sub-contract to the Cowan Construction Company, Limited. In the early part of the season there were about 200 men on the work, but as most of the steel had been laid the previous season, the work was early completed and put in operation.

There had been no serious diseases, with the exception of three cases of typhoid fever, the general health of the men being good. Dr. Cockrin, of Maryfield, was the medical attendant, and the hospitals at Brandon and Regina were used for the typhoid cases.

Goose Lake Extension.—Southwest from Saskatoon to beyond Goose Lake, Saskatchewan, about 80 miles, to eventually connect with the proposed Yorktown-Calgary line.

This was under sub-contract to the Northern Construction Company, Limited. About 800 men were employed, who were housed and boarded by the contractors, some in shacks but mostly in tents. The general health of the men was good, there being no serious diseases, with the exception of four cases of typhoid fever, from which there was one death.

Dr. Walker was the district medical officer under Doctors Mackenzie and Mackenzie, and gave the men every attention. The hospital at Saskatoon was used when necessary.

Rossburn Extension.—Rossburn to Russell, Manitoba, and thence west. C. J. Merry & Company were the sub-contractors for this work. About 400 men were employed, who were housed and boarded in tents.

The general health of the men had been good, and there had been no serious diseases, with the exception of one case of typhoid fever. There were no deaths and comparatively few accidents.

Hospital tents were provided, and Dr. Evans, of Rossburn, was the district medical officer.

Hudson's Bay Branch.—From Hudson's Bay Junction to the pass on the Saskatchewan river, about 89 miles. Steel was being laid the whole length of this work, about 100 men being employed, who were well housed and boarded in tents by the sub-contractors.

There had been little or no sickness, the general health of the men being excellent. Local doctors were employed if necessary.

Thunder Hill Branch.—Dalmeney to Laird and westerly, eventually to connect with the Prince Albert line.

About 100 men were employed, who were well housed and boarded in tents. Their general health had been good, there being no serious disease or deaths. They were attended by local doctors.

Oakland Branch.—Oakland to Delta, Manitoba.

Only about 60 men were employed, who were housed in tents and were in excellent health, having the attendance of a local doctor from Oakland.

Oak Point Branch.—From Oak Point northwesterly.

Only about 50 men were employed, who were well housed and boarded, and in excellent health, being medically supervised by the local doctor from Oak Point.

Canadian Northern, Ontario, Railways.

Toronto-Sudbury Branch.—Between Parry Sound and French River, Ontario. Track laying and ballasting.

Angus Sinclair, C.E., contractor.

About 250 men were employed, who were housed and boarded in lumber cabins by the contractor. There were no contagious or infectious diseases, and no deaths, the general health of the men being excellent.

Hospitals at Parry Sound and Sudbury were used when necessary. W. N. Robertson, M.D., was the medical officer in charge .

This work is now completed and operated.

Key Harbour Camps.—Wharf and bridge construction. Mackenzie, Mann & Co., chief contractors. R. M. Pratt, C.E., sub-contractor.

About 75 men were employed, who were housed and boarded in lumber cabins. There had been no serious disease or deaths, and the Sudbury hospital was used when necessary. W. N. Robertson was the medical officer.

This work is now completed.

Key Harbour Line.—From near the Pockerel Crossing to Key Harbour, Ontario, six miles. Alex. Sinclair, C.E., contractor.

About 75 men were employed, who were well housed and looked after, and had excellent health. W. N. Robertson, M.D., was the attending physician. Work now completed.

Sellwood Branch.—Extending north about 22 miles from Sudbury. Angus Sinclair, C.E., contractor.

About 160 men were employed, housed and boarded in log and frame cabins, well built, well ventilated and well located among pine and spruce trees.

There were no serious diseases, and no deaths, a temporary hospital being on the work, under charge of W. N. Robertson, M.D.

Orillia Branch.—Udney to Orillia, Ontario, 10 miles. Orillia Construction Company, Limited, contractors.

About 150 men were employed, housed and boarded in good comfortable quarters. There had been no serious diseases, and no deaths. The hospital at Orillia was used, and the men attended by a local doctor.

Hawkesbury Extension.—Hawkesbury to Ottawa, Ontario, 58 miles. Messrs. Schell & Kennedy, contractors for grading; Alex. Sinclair, C.E., contractor for tracklaying and ballasting.

About 150 men were employed, who were well housed and boarded by the contractors, or lived in their own homes, and they were attended by a local doctor from Rockland.

This work is well on towards completion, and has been delayed owing to the route through Ottawa not having been decided on.

Canadian Northern, Quebec, Railways.

Extension of Main Line.—Garneau to Quebec, 80 miles. Messrs. O'Brien & Mullarky, Montreal, contractors.

About 200 men were employed, some of them being housed and boarded by the sub-contractors, but many of them boarding with surrounding farmers.

There had been no serious diseases, or deaths, the general health of the men, the water supply and the sanitary conditions being good. R. Frigon, M.D., of St. Casimir, and F. Trudel, M.D., of St. Stanislas, were the medical officers.

The grade has been completed, and most of the steel laid, and it will be ballasted and completed in the near future.

Grand Trunk Pacific Railway.

This road is being built by the Grand Trunk Pacific Railway Company, and as at present constituted, is lined out to run from Winnipeg, Manitoba, to Prince Rupert,

British Columbia, and to have a number of branches therefrom. It has been sublet to various contractors, and the Prairie section, extending west of Edmonton and totalling 914 miles, is approaching completion.

The Eastern portion thereof, comprising 666 miles, from Winnipeg, Manitoba, to Wainwright, Alberta, having been completed and put in operation, a tri-weekly train service having been running thereon since September last (1908).

The men employed were mostly housed in tents or boarding cars, and owing to the frequency of removal, the sanitary conditions of the camps were good, and the general health of the men excellent, the various contractors and sub-contractors, together with the medical officers (with few exceptions) doing their best under the circumstances to carry out the regulations of the Public Works (Health) Act.

J. Alex. Hutchison, M.D., chief medical officer of the company at Montreal, takes full charge of the medical work on the construction as far as the end of the Prairie Division, west, and has two division assistants, Dr. Lency, of Winnipeg, and Dr. Hislop, of Edmonton.

In the following more detailed report of the work on this road, I am indebted to the courtesy of Dr. Hutchison for the information as to sickness, accidents, deaths, &c., on the work during the past year.

Mountain Division.—From Prince Rupert, British Columbia, east, 100 miles. Messrs. Foley, Welch & Stewart, chief contractors.

About 2,000 men are employed, who are well housed and boarded in tents and log cabins by the contractors.

The sanitary condition of the camps has been well attended to, and the general health of the men has been excellent. There had been no contagious diseases, and few deaths.

F. J. Ewing, M.D., is the chief medical officer of the work, resides at Prince Rupert, and maintains a good hospital there, provided with hospital assistants, and besides has two medical assistants who regularly visit the various camps.

Prairie Division West.—From Edmonton, Alberta, west to Wolfe Creek, the end of the Prairie section, 129 miles west of Edmonton, most of the grading is done, and for the first 50 miles west from Edmonton rails are being laid. Messrs. Foley, Welch & Stewart were also the contractors for this work.

About 650 men were employed, who were well housed and boarded in tents by the contractors. The sanitary conditions of the camps were good, there had been no serious disease and the general health of the men was excellent. Dr. Hislop, of Edmonton, was the division medical officer, and Dr. Culton, of Wabamun, and Dr. Scott, of Pembina, the district medical officers. Hospital tents were provided, but the General hospital at Edmonton was used when possible.

Prairie Division West.—From Edmonton, Alberta, to Wainwright, Alberta, the commencement of the West division of the Prairie section. Messrs. Foley, Welch & Stewart were the chief contractors.

About 1,100 men were employed, who were housed and boarded in tents, located in twenty-one camps, distributed over sixty miles.

The sanitary condition of the camps was fairly good, and the general health of the men excellent, but early in the month of May last, several cases of smallpox developed in the camps surrounding the Battle River Crossing, and these with some suspects, had to be strictly quarantined in separate tents. The disease was of a very mild form, and through the immediate and close attention given the matter by Dr. Hislop, the divisional medical officer, Dr. Burrow from Edmonton, the provincial health officer, and Dr. Steele, the district medical officer on the work, the disease was confined to men from only three camps, and was soon eradicated and the quarantine raised. Isolation tents were provided, and an hospital was maintained at Battle River Crossing, under the charge of Dr. Steele, who resided thereat. Besides the division medical officer, four district medical officers were employed.

This work is nearing completion, steel being laid, and a train service will likely be in operation to Edmonton during the summer.

Prairie Division East.—Comprised of 666 miles from Winnipeg, Manitoba, to Wainwright, Alberta. J. M. Leney, M.D., of Winnipeg, is the division surgeon, under Dr. Hutchison.

There were different sections in this division, which were let to various contractors. About 1,500 men had been employed, who were housed and boarded in tents or board shacks by the various contractors.

The sanitary conditions had been fairly good, and the general health of the men excellent. There had been no outbreak of contagious or infectious diseases, and very few accidents or deaths.

In this division there were nine district medical officers, as under, viz.:—

Dr. J. E. Lundy, Portage, Manitoba; Dr. W. A. McLeod, Melville, Manitoba; Dr. F. G. Schwalm, Rivers, Manitoba; Dr. P. C. Crosby, Miniota, Manitoba; Dr. B. A. Sandwith, Nokomis, Saskatchewan; Dr. E. W. Hixon, Watrous, Saskatchewan; Dr. G. R. Peterson, Saskatoon, Saskatchewan; Dr. S. J. Staples, Biggar, Saskatchewan; Dr. J. E. Middlemass, Wainwright, Alberta.

General hospitals at various towns adjacent to the line of construction were used when necessary.

This work has all been completed and put in operation.

Fort William Branch.—From Fort William, Ontario, to Superior Junction, Ontario, the connecting point with the Transcontinental Railway, about 200 miles.

Messrs. Foley, Welch & Stewart were the contractors, with headquarters at Dinorwic, Ontario.

About 1,000 men were employed, mostly located over the northwestern twelve miles of the route. They were housed and boarded in wooden buildings by the contractors.

The sanitary conditions were fair, and the general health of the men good, but a good many cases of typhoid developed. A well equipped hospital was maintained at Grassey (now Wako), in charge of F. H. Callahan, M.D. F. J. Ewing, M.D., was the chief medical officer for the contractors, and had a hospital and headquarters at Fort William.

On the completion of the grade the company took over the medical care of the employees during the track-laying, &c., with Dr. G. E. McCartney, of Fort William, as division surgeon.

The above report *re* construction and medical service on the route of the Grand Trunk Pacific Railway covers a total mileage of 1,114 miles, over which, and among the large body of men employed, there were:—

41 cases of typhoid fever.
9 cases of smallpox.
1 case of diphtheria.
3 cases of measles.
1 case of scarlet fever.

During the laying of steel, the medical department under Dr. Hutchison kept an hospital car at the end of the steel, with a medical officer in charge, both on the Fort William branch and the Prairie section; this, as far as I am aware, is the first work on which a special hospital car has accompanied the laying of steel.

National Transcontinental Railway.

This road is being built by the Dominion government, and at present all the sections have been given out on contract, between Winnipeg and Moncton, New Brunswick, and are with one exception now under construction.

I am pleased to report that on my visit to the works on said sections I found excellent hospital accommodation provided, the men comfortably housed and well fed,

the camps in good sanitary condition, and a duly qualified physician as district medical supervisor over each section of camps, which could be conveniently covered by him within the requirements of the regulations.

There had been no serious outbreak of contagious diseases, and the health of the men had been excellent, with the exception of some cases of typhoid fever.

I give below the extent and location of camps, with other particulars of the works carried on by the various sub-contractors.

Section from Winnipeg east to junction of Grand Trunk Pacific branch, from Fort William, 245 miles. This is under contract to Mr. J. D. McArthur, of Winnipeg.

J. K. McLennan, M.D., of Winnipeg, is the chief medical officer on behalf of the contractor, with J. R. Gunn, M.D., as medical superintendent at Kenora, Ontario, which is central to the work, and he has ten district medical officers, resident at various points along the route, and excellent hospital accommodation is provided where necessary.

St. Boniface, Manitoba, Camps.—J. D. McArthur, contractor. These camps were seven in number distributed between St. Boniface and Rennie, and were comprised of ballasting gangs, train-filling gangs, track-laying gangs and fence gangs.

About 550 men were employed, who were housed and boarded in tents and boarding cars. As they were weekly on the move, the sanitary conditions were all right, and the general health of the men good.

There were two cases of typhoid, two of scabies and one of pneumonia. The hospital at St. Boniface was used. W. G. Lyall, M.D., was the district medical officer.

This part of work now completed.

Ingolf, Ontario, Camps.—Oleson & Larson, sub-contractors. Rock work and grading. These camps are 15 miles north of Kalmar, a station on the Canadian Pacific Railway, and can be reached by team to Malachi lake, and then by boat.

Three hundred men were employed thereat, and distributed over five camps, No. 1 being Lake Malachi, No. 2 west two miles, No. 3 west four miles, No. 4 west six miles, and No. 5 at Rice Lake. The men in each camp were housed and boarded by the sub-contractors in good board and log buildings. There had been ten cases of typhoid fever, and one of erysipelas, but there were no other developments of contagious or infectious diseases, and there were two deaths, one from drowning and one from typhoid. The general health of the men and the sanitary conditions of the camps were good. A permanent hospital was provided at camp No. 1, but the General hospital at Kenora, Ontario, was used when advisable.

The water supply was fairly good and taken from wells and lake. Latrines were provided at each camp.

P. McRitchie, M.D., was the resident district medical officer.

Two of these camps are closed, work being completed.

Kalmar, Ontario, Camps.—Guy Campbell and P. Sullivan, sub-contractors. Rock work principally, and extending seven miles. There were two main camps, known as No. 1 and No. 3, No. 1 being at Otter lake, and No. 3 two miles east. There were also two smaller camps known as No. 2 and No. 4, and two other camps known as Sullivan's No. 1 and No. 2. 420 men were employed thereat, housed and boarded by the sub-contractors in comfortable log and frame buildings.

There were two cases of typhoid and one of tuberculosis, with one death among the men, and only a few minor accidents. The general health of the men was good, and the condition of the camps throughout excellent.

Water from wells was used for drinking purposes, and lake water for general use. Latrines were provided at all camps.

The permanent hospital at camp No. 1, Lake Malachi, was used, but the General hospital at Kenora, Ontario, would be used in case of necessity. P. McRitchie, M.D., was the district medical officer of this work also.

Two of these camps are now closed.

Winnipeg River Camps.—Chambers Bros., McQuigge & McCaffrey, sub-contractors. Ten miles of grading and rock work.

These camps are located fifteen miles north from Kenora, Ontario, a station on the Canadian Pacific Railway, and can be reached from there by boat up the Winnipeg river, to Winnipeg River Crossing, thence overland one or two miles.

Three hundred men were employed thereat, located in three camps, situated west of the Winnipeg river and housed and boarded by the sub-contractors in comfortable board and log buildings.

There had been no cases of contagious or infectious diseases, with the exception of six cases of typhoid. There had been minor accidents, and eleven deaths, nine from explosion and two from typhoid. The general health of the men and the sanitary conditions of the camps were good.

The water supply was good and was from lake and springs. Two latrines were provided for each camp. Temporary hospital quarters were provided with a permanent hospital east of the McFarland river, and the general hospitals at Kenora were used when necessary.

R. Wightman, M.D., was the resident district medical officer of these camps.

Winnipeg River Camps.—Dutton & McArthur, sub-contractors. Five and one-half miles of grading and rock work. There were nine camps situated east of the McFarland river, and 800 men were employed on the work, who were housed and boarded by the sub-contractors in comfortable board and log buildings.

There had been fifteen cases of typhoid fever, but no other cases of contagious or infectious disease. There were several accidents, and one death. The general health of the men and sanitary conditions of the camps had been fair.

The water supply was good, and two latrines were supplied for each camp. There was a permanent hospital conveniently located for the various surrounding camps, with an hospital orderly and graduated female nurse employed thereat, under charge of R. Wightman, M.D., who was the district medical officer of this work.

Five of these camps are now closed, the work being completed.

Winnipeg River Camps.—McCaffrey & Hicks, sub-contractors. Two miles of rock grading. One camp situated fifteen miles east of Winnipeg River Crossing.

One hundred men were employed on the work, and were housed and boarded by the sub-contractors in log buildings. There had been one case of typhoid, one accident and no deaths. The general health of the men had been good, and the permanent hospital at Winnipeg River Crossing was used when necessary.

Robert Wightman, M.D., was the district medical officer of this camp.

The work is now completed.

Hawk Camps.—Welch Bros., Thompson & Egan, T. D. Sullivan and A. J. McDougald, sub-contractors. Grading, filling and rock work. There were nine camps located at Wild lake and Spectacle lake. These camps are some miles north from Hawk, a station on the Canadian Pacific Railway, and can be reached by team and canoe from there, or from Margach, another station on the Canadian Pacific Railway, direct by canoe, with several portages to make.

Eight hundred and thirty men were employed thereat, housed in log buildings and boarded by the sub-contractor.

There had been eight or ten cases of typhoid fever, no accidents and six deaths. Good water was used for drinking and culinary purposes, and the general health of the men was good and the sanitary condition of the camps was properly looked after.

There was a good hospital (known as Wild Lake hospital) erected on a point of the lake opposite camp No. 1, which was in charge of J. O. Walker, M.D., as resident and district medical officer thereof. Two trained female nurses and an hospital orderly were employed at said hospital.

Four of these camps are now closed, work completed.

Vermilion Bay Camps.—Anderson & Johnson, sub-contractors. Grading, rock work and filling. There had been fourteen camps, the first of which is located fifteen miles north of Vermilion, a station on the Canadian Pacific Railway, and can be reached by team from there. 1,005 men were employed thereat, housed in log buildings, and boarded by the sub-contractors.

There had been thirty-eight cases of typhoid fever and one case of pneumonia, but no other contagious or infectious diseases. Three accidents and sixteen deaths, thirteen from typhoid, one from pneumonia and two from accidents. The general health of the men, the water obtained and the sanitary condition of the camps all first-class.

There is a permanent hospital at Parson's camp No. 1, a few miles north on a good road and boat route, that is used when necessary.

H. L. Sims, M.D., is the resident district medical officer of this work.

Nine of these camps are now closed, the work being completed.

Vermilion Bay Camps.—W. T. Parsons, sub-contractor. Rock work chiefly. These camps are situated about eighteen miles from Vermilion Bay, and reached by team. 880 men were employed, who were located in fourteen camps, situated on Canyon lake, and housed and boarded in good log buildings by the sub-contractor.

There have been fifty-five cases of typhoid, but no other contagious or infectious diseases, seven serious accidents and seven deaths. The general health of the men had been good, and the sanitary conditions of the camps very fair. Good water is obtained from Canyon lake, and latrines are provided for each camp. A good hospital has been established at W. T. Parson's headquarters camp, with an orderly and trained female nurse employed.

D. G. Dingwall, M.D., is the district medical officer residing at these camps.

Most of these camps are now closed, the work being completed.

Dryden, Ontario, Camps.—George H. Webster, sub-contractor. Fourteen miles of rock and earth work. The camps were eleven in number, the first situated some eighteen miles north from Dryden, Ontario, a station on the Canadian Pacific Railway, and reached by team from there. 855 men were employed on the work, who were boarded and housed in good log buildings by the sub-contractor.

There had been thirty-two cases of typhoid, but no other contagious disease, two accidents, seven deaths from dynamite explosion, three from accidents, three from typhoid, one drowned and one from natural causes. The general health of the men had been excellent, and the water and sanitary conditions of the camps good. A permanent hospital is established at No. 4 camp (which is headquarters), employs a hospital orderly and a trained female nurse, and is under the charge of John Brandon, M.D.

Nine of these camps are now closed, the work being completed.

Wabigoon, Ontario, Camps.—Eastern Construction Company, sub-contractors. Sixty miles of rock and earth work.

There were ten camps running from the extreme easterly end of the McArthur contract, and reached by team from Wabigoon and then by boats and portages. 1,200 men were employed on the work, who were housed in good log and board buildings, and well boarded by the sub-contractors.

The general health of the men had been excellent, and the water supply and the sanitary condition of the camps good. There had been about forty cases of typhoid, but no other contagious or infectious disease, and only two serious accidents. There was one death from pneumonia, one from falling rock and eight from typhoid.

Dr. Nasmith took the fever and was laid up three months, being temporarily replaced by Dr. Williams, who also took the disease, and after apparent recovery and convalescence died suddenly on his way out. A permanent hospital was maintained at the headquarters camp (No. 2) and was provided with an hospital orderly and a trained female nurse.

W. W. Nasmith, M.D., was the district medical officer residing at the camps.

These camps are now all closed, the work having been completed.

Superior Junction Section.—From Superior Junction east 150 miles, to junction of the Western section, let to Messrs. E. F. and G. E. Fauquier. This is under contract to Messrs. O'Brien, Fowler & McDougall Bros., who have their headquarters at Fort William, Ont.

Dr. J. E. Josephs, of Pembroke, Ontario, is the chief medical officer for the contractors, and Dr. J. M. McGrady, of Port Arthur, is the officer in charge on the work, and two district medical officers are in charge of two hospitals thereon.

Access to the work is from Fort William, over the branch of the Grand Trunk Pacific Railway to Superior Junction.

Superior Junction Camps.—The Eastern Construction Company, Messrs. Bonfield & Harvey, Messrs. W. and A. McDougall Bros., and A. McGougan, C.E., being the sub-contractors.

About 840 men are employed, who are located in eleven camps, and housed and boarded in log and board buildings by the sub-contractors.

There has been no contagious or infectious disease, and the general health of the men and the sanitary conditions are good. There have been several accidents, and two deaths from explosions. A good hospital (No. 1) is maintained for these camps, located on the work about twelve miles from Superior Junction. W. Graham, M.D., is the district medical officer of these camps, with residence at the hospital.

Wako Camps.—Entrance thereto from Fort William via Wako, Ontario. Messrs. Finlayson & Barry, Quebec Constructing Company, and Messrs. Reed & McEwen are the sub-contractors.

About 720 men are employed, who are distributed over seven camps, and housed and boarded in log buildings by the sub-contractors. The general health of the men and the sanitary conditions of the camps are good.

There had been no serious accidents, no contagious or infectious diseases, and no deaths. A good hospital is maintained (No. 2) some miles east from No. 1, and is in charge of E. B. Oliver, M.D., who resides there, and is the district medical officer of these camps.

Nipigon Section.—From the east end of O'Brien, Fowler & McDougall Bros. contract, east 75 miles. This is under contract to Messrs. E. F. and G. E. Fauquier, of Ottawa, who have sublet it to the Nipigon Construction Company, Limited, who have their headquarters at Nipigon, Ontario, a station on the Canadian Pacific Railway, and from which access is had to the work.

Albert Laidlaw, of Kenora, Ontario, is the chief medical officer, and has two district medical officers on the work.

Nipigon Camps.—Messrs. McCaffrey & McQuigge, Sherwood & Russell and H. Synn & Co. are the sub-contractors from the Nipigon Company. There are six camps, access to which is by a tramway of fifteen miles, and boat over Lake Nipigon.

About 400 men are employed, who are housed and boarded in log buildings by the sub-contractors. There has been no contagious or infectious disease, the general health of the men and the sanitary conditions of the camps being good. There were two serious accidents, and eight deaths from explosions. There is one hospital maintained, and Drs. H. Bryan and J. H. Browning are the district medical officers in charge at the work.

Abitibi Section West.—From about eight miles west of the Abitibi River Crossing, westerly for 100 miles.

This is under contract to Messrs. E. F. and G. E. Fauquier, of Ottawa. Access thereto is had from Cochrane, Ontario, the northern terminus of the Temiskaming and Northern Ontario Railway.

A. Henderson, M.D., is the chief medical officer of the work.

Abitibi West Camps.—Messrs. Fortum & McNulty, Hamer & O'Kelly, John Mackay, Messrs. Johnson & Beveridge, Andrew Zebsron, Messrs. Patterson & Overn, and Messrs. Armstrong & Steward are the sub-contractors.

About 1,400 men are employed, who are located in fourteen camps extending over fifty miles of the work, and they are housed and boarded in log buildings by the sub-contractors.

There were ten cases of typhoid but no other contagious or infectious diseases, with the exception of one case of smallpox which developed at the camp of Armstrong & Steward, which was immediately isolated and quarantined, and recovery made without other cases developing. There was one death from fever, but no serious accidents, the health of the men and the sanitary conditions of the camps being good.

There are two well fitted hospitals on the work, the chief medical officer, Dr. Henderson, residing at one and visiting the camps adjacent, and C. A. Carmichael, M.D., residing at the other and visiting the camps adjacent thereto.

Abitibi Section East.—From about eight miles west of the Abitibi River Crossing, easterly for 150 miles.

This section is under contract to the Grand Trunk Pacific Construction Company, and was sublet by them to the J. H. Reynolds Construction Company of St. Louis, U.S.A., but as they failed to make sufficient progress thereon, their contract was annulled, and it was again sublet to Messrs. Foley, Welch & Stewart, who have their headquarters at Matheson, Ontario, and are now doing the work.

The entrance to this work is also from Cochrane, Ontario. A hospital is maintained at the work. John McCombe, M.D., is the chief medical officer, and D. B. Kennedy, M.D., is the district medical officer.

Abitibi East Camps.—There were a number of small camps, mostly station gangs, scattered over the route, there being about 300 men in all, who were housed in log shacks and either boarded themselves or were boarded by the sub-contractors.

There have been no serious diseases, accidents or deaths, the general health and conditions being good.

There was a hospital at Abitibi Crossing, and D. B. Kennedy, M.D., was the district medical officer.

Eastern Section, District 'B.'—From a point a few miles northwest of La Tuque village, to a point known as Weymontachene, a distance of about 45 miles. This section was let to the Grand Trunk Pacific Construction Company, and was sublet by them to Messrs. Macdonnel & O'Brien. There were fifteen sub-contractors under Messrs. Macdonnel & O'Brien on this section, who had twenty-four camps, and employed about 1,700 men, who were housed in good log buildings and boarded by the sub-contractors on the work.

There had been ninety-two cases of typhoid and one of tuberculosis, eight serious accidents and twenty-one deaths, mostly accidental. The sanitary condition of the camps, the quality of water used and the general health of the men were good. James Franckum, M.D., was the district medical officer of the westerly camps of the section. A good-sized hospital was erected and maintained at the 'Little Farm,' Vermilion river, with an hospital orderly employed. B. Donovan, M.D., was the district medical officer of the middle camps, with residence at the hospital, and J. C. Byers, M.D., district medical officer of the eastern camps of the section, who is in charge at present. John McCombe, M.D., is the medical supervisor of the work on behalf of Messrs. Macdonnel & O'Brien, and takes charge of the St. Maurice hospital five miles from La Tuque.

Some of the camps have been closed, their work having been completed.

A daily train is running on the line for about twenty miles west from La Tuque.

Quebec Section.—From a few miles northwest of La Tuque village, southeast 100 miles, to junction of section of sub-contract let to Messrs. M. P. and J. T. Davis. This is under contract to Messrs. Macdonnel & O'Brien, of Montreal.

There were four sub-contractors, having eight camps and employing about 700 men. There had been no contagious or infectious disease, serious accidents or deaths, the general health of the men and the sanitary conditions of the camps being fairly good. John McCombe, M.D., was the chief medical officer for the contractors, and maintained a good hospital about four miles southeast from La Tuque.

R. A. Hughes, M.D., was the district medical officer, and resided at the hospital.

These camps and the hospital were closed before the epidemic of typhoid broke out in the camps west from La Tuque, the work having been completed.

Section from Quebec Bridge.—Fifty miles northwest. The contract for this work was given to Messrs. Macdonnel & O'Brien, of Montreal, together with the section reported above as being constructed by them, but they sublet these fifty miles to Messrs. M. P. and J. T. Davis, of Quebec, who constructed the same, with three sub-contractors under them, Messrs. Lothain, Rainboth, Roberge and Chagnon.

Several hundred men were employed thereon, but there were no special camps, the men living in their own homes, or boarding with residents scattered along the line.

There had been no contagious or infectious diseases, and no deaths, but there were four minor accidents. The general health of the men and the sanitary conditions were good, the water supply being fair.

J. P. Lavoie, M.D., of Quebec, was the chief district medical officer when the work first commenced, with A. Marcotte, M.D., as resident district medical officer at St. Basile, P.Q. Later on local doctors were employed when necessary.

This work is now completed.

Quebec Section, District 'B.'—From a point near Quebec bridge easterly for a distance of 150 miles. This section was let to Messrs. M. P. and J. T. Davis, of Quebec, who have sublet it in small sections.

J. E. Parent, M.D., of Quebec, is the chief medical officer of the whole work.

There were twenty sub-contractors on the work during the past twelve months. About 3,350 men were employed, who were located in fifty-eight camps distributed along the route, and housed and boarded in good quarters by the various sub-contractors.

There had been no contagious or infectious diseases, only two fatal accidents, and thirteen deaths, eleven being from one explosion, one from falling rock, and one murder. There were seven hospitals maintained at various points along the route, and the General hospital at Lévis was used when advisable.

The district medical officers in charge of camps at various points along the route were: Donat Bernier, M.D., of St. Anselme, Que.; Leon Blais, M.D., of Armagh, Que.; J. E. A. Cloutier, M.D., of Cap St. Ignace, Que.; L. A. Garneau, M.D., of St. Anne Station, Que.; H. W. Blagdon, M.D., of St. Philippe de Neri, Que.; C. Bourget, M.D., of St. Eleuthera, Que., and J. L. P. Richards, M.D., of Baker Lake, N.B.

Thirty-five of the above camps have closed, their work having been completed.

New Brunswick Section, District 'A.'—From a point near Grand Falls, westerly to the boundary between the provinces of New Brunswick and Quebec, a distance of about 62 miles.

This was let to Messrs. Lyons & White, who have made their headquarters at Edmundston, N.B., and have sublet the work to various sub-contractors, seven in number, who had about 1,000 men employed and located in about twenty camps distributed along the whole route. There had been seven cases of smallpox (mild type) and twelve cases of typhoid, but no other contagious or infectious disease. There were four deaths, three from typhoid and one from explosion. The general health of the men and the sanitary condition of the camps had been fairly good. The General hospital at St. Basile, N.B., was used.

Doctors P. H. Laporte, J. A. Guy and C. G. Main were the district medical officers, each covering about twenty miles of the work.

About twelve of the above camps have closed, their work having been completed.

Grand Falls Section, District 'A.'—From a point near Grand Falls, N.B., to Plaster Rock, N.B., 31½ miles.

This is under contract to the Willard, Kitchen Company, who have made their headquarters at Grand Falls, N.B.

There were eleven sub-contractors, and about 950 men employed, who were located in thirteen camps, covering the contract.

There had been no contagious or infectious disease, with the exception of six cases of typhoid, no serious accidents and one death, the general health of the men being excellent, and the sanitary condition of the camps good.

A temporary hospital was maintained at Grand Falls. B. A. Puddington, M.D., and Charles B. Rouleau, M.D., were the district medical officers of the work there, and J. D. Coffin, M.D., of the camps near Plaster Rock.

This work is well advanced, but no camps have been closed.

Plaster Rock Section, District 'A.'—From Plaster Rock to Chipman, N.B., 107 miles. There were two divisions in the above distance, one of 67 miles and one of 40 miles, both under contract to the Grand Trunk Pacific Construction Company, who sublet them to the Toronto Construction Company, who make their headquarters for the work at Plaster Rock.

Plaster Rock Camps.—East from there about 26 miles. Johnson Bros. are the sub-contractors, having several camps, and employing about 500 men, who were housed and boarded in good board camps by the sub-contractors.

There had been no contagious or infectious disease, serious accidents or deaths, the health of the men and the general sanitary conditions being good.

A hospital was provided at Plaster Rock. J. D. Coffin, M.D., was the district medical officer and supervisor of the work.

Chipman Camps.—From the junction of the Plaster Rock camps, east to Chipman. There were ten sub-contractors, and 1,450 men were employed, who were located in twenty-seven camps scattered over the route.

There had been no contagious or infectious disease, but there were five deaths: three from explosions and two from other accidents. The general health of the men and the sanitary conditions of the camps were good. The men were housed and boarded in good log and board buildings by the sub-contractors.

An excellent hospital was maintained at Chipman, N.B., by H. B. Hay, M.D., who was the chief medical officer of these camps, and had L. Chapman, M.D., and A. Sterling, M.D., as district medical officers.

Chipman Section, District 'A.'—From Chipman, N.B., east eight miles. John W. McManus Company were the contractors. There were two camps with about 75 men employed, who were housed in log and board buildings, some boarding themselves, others boarded by the contractors.

There had been no serious diseases, but one death from accident. The general health and sanitary conditions were fairly good. H. B. Hay, M.D., was the medical officer of the work, and his hospital at Chipman was used.

Moncton Section, District 'A.'—From eight miles east of Chipman to Moncton, N.B., 50 miles. This is under contract to the Grand Trunk Pacific Construction Company, and was sublet by them to the Corbett, Floesch Company.

About 450 men were employed, who were well housed and boarded by the sub-contractors, with the exception of a few who lived in the locality.

There had been no serious diseases, but one death from explosion, with a few minor accidents. The general health of the men was good, and the sanitary conditions excellent. The hospital at Chipman, and the General hospital at Moncton were used. H. B. Hay, M.D., of Chipman, is the chief medical officer, and attends the men in the

western camps, and A. R. Myers, M.D., of Moncton, attends the men of the eastern camps.

Considerable work has been done on this contract, and some rails are laid.

Intercolonial Railway.

Double Tracking.—From Moncton to Painsec Junction. McManus & Company were the contractors, and employed about 150 men, who were housed and boarded by the contractors in temporary camps.

There were no serious diseases, accidents or deaths. A. R. Myers, M.D., was the medical officer of the work, which is now completed.

On all the above public works, during the past twelve months, there was an average of 34,085 men employed.

There were 399 cases of typhoid fever,
18 cases of smallpox,
1 case of diphtheria,
7 cases of erysipelas,
6 cases of tuberculosis,
13 cases of scabies,
4 cases of measles,
1 case of scarlet fever,
160 deaths,
108 qualified medical officers.

In closing this report for the twelve months ended March 31, 1909, I am pleased to be again able to draw your attention to the very few cases of contagious and infectious diseases (with the exception of typhoid fever), considering the very large body of men employed; also to their general healthfulness, the good sanitary conditions of most of the camps, and the attention given by the contractors and medical officers in trying to fulfil the regulations of the Public Works (Health) Act, 1899.

I have the honour to be, sir,

Your obedient servant,

CHAS. A. L. FISHER,

Public Works (Health) Inspector.

The Honourable
The Minister of Agriculture,
Ottawa.

APPENDIX No. 14.

SPECIAL MANGE ORDER FOR SASKATCHEWAN AND ALBERTA.

Whereas the disease of mange exists among cattle throughout those portions of the provinces of Saskatchewan and Alberta, which may be described as bounded by the international boundary, the Rocky mountains and a line drawn as follows:—

A line from the Rocky mountains along the northern boundary of the Stoney Indian reserve to the line between ranges 5 and 6 west of the 5th meridian, thence north along that line to the line between townships 28 and 29, thence east along that line to the line of the Calgary and Edmonton Railway, thence north along the Calgary and Edmonton Railway to the line between townships 30 and 31, thence east along that line to the line between ranges 26 and 27 west of the 4th principal meridian, thence north along that line to the line between townships 34 and 35, thence east along that line to the Red Deer river, thence north along the Red Deer river to the line between townships 38 and 39, thence east along that line to the 4th principal meridian, thence south along the 4th principal meridian to the Red Deer river, thence along the Red Deer and Saskatchewan rivers to the line between ranges 7 and 8 west of the 3rd meridian, thence south along that line between townships 10 and 11, thence east along that line to the line between ranges 20 and 21 west of the 2nd meridian, thence south to the international boundary line.

CATTLE FOR IMMEDIATE SLAUGHTER.

1. Cattle intended for immediate slaughter or for export to Europe shall not be removed or allowed to move out of the above described tract, nor shall any railway company accept or load any such cattle for shipment, except under the following conditions:—

(*a*) Cattle other than those consigned to Winnipeg or to points in Canada east of Winnipeg shall be removed or allowed to move out of the above described tract, either by rail or otherwise, only when accompanied by the certificate of an inspector of the Department of Agriculture, stating that they have been examined by him and have been found free from infection of mange and other contagious disease.

(*b*) Cattle consigned to Winnipeg or to points in Canada east of Winnipeg, whether originating within the above described tract or not, shall be inspected at Winnipeg, and no railway company shall release such cattle at Winnipeg, or load such cattle for reshipment therefrom, until they have been submitted by daylight to an inspector of the Department of Agriculture and certified by him to be free from mange and other contagious disease.

(*c*) When cattle are shipped for immediate slaughter or for export, they shall not be sold or otherwise disposed of for any other purpose, and any infraction of this provision shall be deemed an infraction of the Animal Contagious Diseases Act, and dealt with accordingly.

CATTLE FOR PURPOSES OTHER THAN IMMEDIATE SLAUGHTER.

2. Cattle intended for grazing, feeding, breeding purposes or milk production, or for any purpose other than immediate slaughter, shall not be removed or be allowed to move out of the above described tract, nor shall any railway company accept or

load any such cattle for shipment unless they are accompanied by the certificate of an inspector of the Department of Agriculture stating that they have been, within a period of thirty days immediately preceding the date of shipment, treated under the supervision of the said inspector and in a manner satisfactory to him.

3. Cattle found on inspection to be affected with mange or other contagious or infectious diseases, shall be dealt with as may be ordered by the inspector.

4. At points where cattle originating in the said tract are unloaded, they shall be placed in special yards, and such yards shall be used for no other purpose and be cleansed and disinfected when so ordered by an inspector.

5. All cars and other vehicles used for the carriage of cattle originating within the said tract shall be cleansed and disinfected to the satisfaction of an inspector as soon as possible after being unloaded and before being used for any other shipment.

6. All way-bills and bills of lading accompanying shipments of cattle originating within the said tract shall have plainly written or stamped across the face thereof a notification that the said cars are to be cleansed and disinfected immediately after being unloaded.

7. Cattle affected with, or which have been exposed to the contagion of mange, may be shipped by rail for immediate slaughter to points within the above described tract under the following conditions:—

(*a*) They must before being loaded, be inspected by a veterinary inspector who shall issue a license in proper form for their removal to a given destination, and who must further personally see them loaded, and that the cars conveying them are duly billed to the said destination, and to no other, and that the following provision is complied with:—

(*b*) Cars conveying such cattle must bear a placard having clearly printed thereon, in letters not less than six inches long, the words 'Mangy cattle for immediate slaughter.'

(*c*) Unless loaded through special yards and chutes reserved exclusively for such shipments, all yards and chutes, weigh scales or other appliances, used by them, shall be declared infected places, and shall not be again used for the shipment of healthy stock until cleansed and disinfected to the satisfaction of an inspector; they shall not be allowed to come in contact with other animals; shall be consigned direct only to such slaughter-houses within the hereinbefore described tract as are provided with private yards and chutes; shall not be unloaded at any point en route, and shall, under no pretext whatever, be removed alive from the slaughter-house or yards and premises immediately connected therewith.

(*d*) Cars conveying such cattle shall be cleansed and disinfected to the satisfaction of an inspector immediately after being unloaded, and until this has been done, the placard above referred to shall not be removed under any pretext whatsoever.

8. The transit of cattle through the said tract is permitted subject to the following regulations:—

(*a*) Cattle for transit by rail through the said tract from one part of Canada to another shall, at points where unloading is necessary, be placed in yards reserved for their exclusive use, and shall not be permitted to come in contact with cattle which have originated within the said tract.

(*b*) Cattle imported from the United States into the said tract destined for points in Canada outside thereof may, under compliance with quarantine regulations, and with the provisions of the next preceding paragraph hereof, be permitted to pass without unnecessary delay through the said tract direct to their destination without further restrictions.

Vide *Canada Gazette*, vol. xli, p. 3098.

APPENDIX No. 15.

EXHIBITIONS.

SEATTLE, March 31, 1909.

SIR,—I beg to submit the following report on the operations of the Canadian Government Exhibition Commission for the year 1908.

FRANCO-BRITISH EXHIBITION, SHEPHERD'S BUSH, 1908.

According to your instructions, I went to London in the middle of July, 1907, to meet the members of the committee of the Franco-British Exhibition, and secured the site which you had yourself visited in the first days of the same month. This site was secured for the price of twelve thousand pounds sterling (£12,000), which I consider a very reasonable one if we take into consideration the location and the large space which was allotted to us, viz., 140,000 square feet. This area of land may perhaps look rather large, but I think it was a good move on our part to secure as much, because one must not forget that at an exhibition of that magnitude the buildings must be in such a position as to be easily seen from a distance, and enough land must be secured around the buildings to leave sufficient space to leave it clear from the small buildings, kiosks, &c., that are too often placed near the large pavilions and spoil all the effect their sight produces on the public. As an example, I will mention the case of Australia, which had obtained a certain quantity of land from the executive of the Franco-British Exhibition, which, when the Australian pavilion was about to be completed, rented to the *Daily Mail*, newspaper of London, a space precisely in front of the building, on which a building was erected, which completely blocked up the principal view from one of the main thoroughfares of the exhibition. This led to a great deal of controversy between the interested parties, and even legal proceedings followed, instituted by the Australian authorities against the executive of the Franco-British Exhibition. I do not know how the matter was settled, but the *Daily Mail* pavilion remained where it was, and it was the general opinion among exhibitors and the public that this was a very unfortunate state of affairs for Australia, which could have been avoided if enough space had been secured.

Basing the cost of our exhibit in London, with all expenses added, at four hundred thousand dollars ($400,000), and calculating the floor and wall space covered by the building at eighty thousand (80,000) feet, the cost of our exhibit would be about five dollars per foot. This is very much less than the cost of exhibits in buildings belonging to the Franco-British Exhibition Company, where space was secured at the rate of ten shillings per foot, and if I add to this the cost of installation and maintenance, I know of many exhibits that cost as high as ten dollars per foot.

On the site we secured, a pavilion measuring 350 x 140 feet was erected. The plans were prepared early in November, but they had to be submitted to the London County Council, who delayed us a long time by their refusal to approve the plans before certain radical modifications were done. After considerable discussion and delay, a compromise was arrived at, and the work was started. The large firm of Humphreys & Company, contractors and builders, London, were given the charge of the construction, and held themselves responsible for the work in consideration of a commission of fifteen per cent on the cost of the building. This included architect's,

surveyor's and inspector's fees. We also had a great deal of difficulty in getting the necessary materials, especially the steel, which could not be delivered at the time agreed upon. Of course the installation work could not be started before the completion of the pavilion, although a large portion of the decoration scheme (decorative panels, transparencies, &c.) were being prepared whilst the construction work was going on.

The official opening of the Franco-British Exhibition took place on May 14, but the general opinion was that it should have been postponed to a later date, as most of the buildings were not ready and the roads in very bad order. The Canadian building was at this time in just as good a shape as several of the pavilions that had opened their doors to visitors, but I did not think it advisable to give admittance to any one until everything was complete. On June 11 we were ready for the public, and the rush of visitors to our pavilion started immediately. Our building was crowded at all hours until the last minute of the exhibition.

Now, I may be permitted to say here that I really believe it was a good thing for Canada that its pavilion did not open at an earlier date, for the reason that the newspapermen who had then nearly exhausted the subject on the other exhibition buildings, grew enthusiastic on the opening of the Canadian pavilion, and would write column over column, vieing between them in their complimentary remarks about Canada, its palace, display of exhibits, &c., which writings constituted for us a priceless advertisement such as would have been otherwise impossible to obtain.

The policy laid down by you to make an exhibit that would convince people that it was a Canadian exhibit and not a gathering of separate provinces, was more noticeable at London than at any exhibition we have participated in. Whilst I feel that it is odious to make comparisons, I think that in this case I may be permitted to make one, because in doing so I am only voicing the opinion of the people and newspapers, and that is by comparing the exhibit of Australia with ours. The Australian exhibit was composed of good natural and manufactured products, but shown as from distinct provinces or states, duplicated in many cases, and the name Australia was lost immediately when one entered the building; and, as remarked by many, there was a want of unison.

In the Canadian pavilion, the inside decorations were for the greatest part made of wheat. The sides of the central portion of the hall were ornamented through their whole length with trees composed of wheat ears, which sprang out of the columns of the side arcades and spread their branches along the walls over a ground-work of green cloth, while at frequent intervals were placed transparencies of Canadian scenes all framed in wheat ears. The central trophy which dominated the entire hall, consisted in the upper part of a red hopper inscribed 'Canada's Red Grain Hopper,' from which diverged four cornucopias wreathed with wheat ears on a red ground. The faces of the trophy were adorned with the portraits (transparencies) of King Edward, Queen Alexandra, the Prince of Wales and the Princess of Wales. When illuminated these transparencies had a beautiful effect.

At the north end of the hall was shown a large mineral map of Canada, with the portraits of Lord Strathcona and Lord Grey on the sides. A large alcove behind the map contained a tableau ('Past and Present') representing the march of the wheat grower and of civilization from the cultivated lands towards the North Pole. That alcove also contained a large number of specimens of the fauna of the country. This exhibit proved a very good attraction.

At the other end of the hall was a railroad map of Canada, which had on either side portraits of the 'Nation Builders': Sir Wilfrid Laurier and the late Sir John A. Macdonald. Below was placed the fish exhibit.

The middle of the east side of the hall was occupied with forestry and wood industry exhibits. A prominent position was given to the pulp and wood pulp specimens. Amid the wood logs a stream of water flowed into a pool containing some live beavers.

In the middle of the west side was the horticultural exhibit. In this section was placed a tableau depicting an orchard and illustrating Canada's possibilities as a

fruit-producing country. The different varieties of apples were arranged on dishes placed on numerous small tables, while preserved fruits were set around the spacious alcove, along with advertising matter on panels and cards.

One of our main attractions was the butter exhibit. Life-size representations of King Edward meeting President Fallières ('Entente Cordiale' allegoric group); the meeting of Jacques Cartier with the Indian Chief Donnacona in 1535; the bust of the Canadian Minister of Agriculture; baskets of roses, &c., the whole of which made in Canadian butter. There was also a good display of other dairy products, such as cheese, &c. Canadian hams and bacons were also on exhibit. These perishable goods were kept in good showing condition by means of a refrigerating plant which had been installed in the building by the firm of H. J. West & Company of London.

Our mineral exhibit, which occupied the northern end of the hall, formed a complete collection of the specimens of all the minerals discovered and known in Canada. Transparencies showing views of Canadian mines and mining operations gave a finished touch to the display.

We had a good exhibit of tobacco, coming especially from the counties of Joliette, Montcalm and Essex.

Whilst we had some manufactured exhibits which were a credit to Canada, we had others which were not fit for exhibition purposes. I think it is very unfortunate that the sole purpose of some exhibitors is to introduce their goods on the market without regard to the quality. Whilst I admit it is a good thing to try and obtain trade, it must be borne in mind that the public base their appreciation of our products on the kind of goods that are on exhibit, because they invariably say: 'If this is the best they make, what would be the kind they would sell us?' Therefore I think it will be well if in the future we are going to put up an exhibit of manufactured articles in the British Isles or in a foreign country, that they should be of high-class quality and nothing but the very best that could be procured.

Notice boards in both French and English were placed on view all through the building, and conveyed to visitors facts about the country, its industries, railways, immigration policy, &c. Pamphlets embodying the same information with greater fulness were carried away by several hundred thousands of people, and I believe that effective advertisement was obtained through our distribution of literature. The most popular and widely circulated newspapers of England, such as the *Times*, the *Daily Telegraph*, the *Daily Mail*, &c., published enthusiastic reports about our exhibit.

We received a large number of inquiries dealing with industrial and commercial matters. In order not to show any partiality towards any particular business or industrial firms, instructions were given to refer all inquiries to the boards of trade or chambers of commerce of the cities or places in which the respective interested industries or business men were located. I may, however, say that all the goods exhibited by our Canadian manufacturers have attracted a great deal of attention, and judging from the inquiries we received, business relations must have originated or increased to a large extent between business men of Canada and Europe.

In several instances we received inquiries from people of Turkey, Egypt, India, Argentine, &c. London being the metropolis of the commercial world, merchants from all parts of the globe are constantly going there to buy or sell goods, and Canada while exhibiting in London naturally benefited from these circumstances.

The members of this staff were constantly busy answering questions to intending settlers or tourists. For definite information, however, the inquirers were referred to the Canadian Emigration Offices, 11-12 Charing Cross, London. Positive instructions were given to the staff not to encourage any one who would not settle on the land to come to Canada, as the government offered advantages only to the farmer, insisting at the same time on the fact that no employment or position could be guaranteed to other classes of emigrants.

SCOTTISH NATIONAL EXHIBITION, EDINBURGH, 1908.

I am glad to report that Canada's participation at the Scottish National Exhibition was also a marked success.

Although our pavilion at Edinburgh was only sixty feet square and the grounds one hundred and ten feet, we used our allotted space and the sum of money we had at our disposal to the best advantage. It must be borne in mind that the Scottish National Exhibition did not come up to the standard of exhibitions I have attended in the past, and as our exhibit was installed in an attractive manner, which I could not say for many exhibits shown at that exhibition, we became very noticeable by producing the finished article, and it was the universal opinion of visitors at the exhibition that our pavilion and our exhibit were a credit to Canada.

We received a great number of visitors every day, and literature on Canada was distributed freely, which no doubt contributed to a large extent to make our country known among the Scottish farmers, who are such a desirable class of settlers.

After the close of the Franco-British and Scottish National exhibitions, the Canadian buildings both at London and Edinburgh were sold for the best price obtainable; the gentlemen appointed for the term of both exhibitions left for home, whilst some members of the staff remained in London to see to the packing of the exhibits, some of which were to be stored in London and others shipped either to Canada or Seattle. On December 24, accompanied by the other members of the commission, I sailed for Canada. Upon my arrival in Ottawa, I immediately started preparing our participation in the Alaska-Yukon-Pacific Exposition, to be held in Seattle this year. I reached the latter place in the beginning of February, when I gave the contract for the erection of our pavilion, which is now progressing satisfactorily, and the necessary steps are being taken to have everything ready for the opening of the exhibition, which is fixed for the 1st of June next.

The whole respectfully submitted.

WM. HUTCHISON,
Canadian Exhibition Commissioner.

The Honourable
The Minister of Agriculture,
Ottawa.

APPENDIX No. 16.

TOBACCO.

OTTAWA, March 31, 1909.

SIR,—I have the honour to submit herewith a report of the work done by the Tobacco Division, from April 1, 1908, to March 31, 1909.

The latter part of the spring of 1908 was spent in laying out our experimental plots and preparing our seed beds at the Central Experimental Farm, Ottawa. An important object in preparing these seed beds this year was to make an experiment in sterilizing vegetable earth with two agents, most generally used for this work: water vapour under pressure and formalin. The results of this experiment are given in Part II of Bulletin No. A-6 of the Tobacco Division, published in January, 1909.

Our research work has been extended, and the number of varieties tested in 1908-1909 has been much larger than formerly. The intention was to make a closer study of certain types of tobacco and of the use to which they might be put in Canada. It was with this object in view that the Brewer Hybrid and Hazlewood were introduced in the Experimental Farm along with certain varieties from Wisconsin and Ohio. As a result of this limited test in 1908, these varieties are now grown on a larger scale in Quebec and Ontario experimental stations. It was hoped that the Brewer Hybrid would give us a product suitable for wrappers, finer than our present Canadian Comstock; the Hazlewood, a product for filler more aromatic than the Havanna seed leaf and the Canadian Comstock, which are sometimes used as fillers in the manufacture of cigars.

The Big-Ohio grown at Ottawa has given a very fine crop. The product is well developed, with a rather fine texture; it gives a larger yield in weight and has perfectly ripened within the period available in this part of Canada. This tobacco is attracting more and more attention, and before long it will probably be used in the preparation of light cut tobacco for pipe or cigarette, provided, however, that it is given suitable curing.

Two assistants were adjoined to the Tobacco Division in June, 1908. Mr. O. Chevalier was put in charge of some agricultural work in the province of Quebec; and Mr. W. A. Barnet in charge of the work in Ontario and other English speaking provinces.

Mr. Chevalier superintended an experiment with fertilizers carried on at St. Césaire, and the results of his observations for the campaign 1908-9 are reported in Bulletin No. A-5 and in Part II of Bulletin A-6 of the series of the Tobacco Division. These bulletins contain valuable information concerning the present situation of tobacco lands in the province of Quebec, the methods of cultivation which it is urgent to adopt in order to maintain or renew their fertility, and the use of farmyard manure and chemical fertilizers in tobacco culture.

Mr. Barnett gave special attention to a study of the conditions under which the culture of tobacco is carried on in the province of Ontario. The results of his work are stated in Bulletin No. A-4, entitled 'Report on the Tobacco Industry in Ontario,' which was printed in English only. This bulletin contains a summary of the methods of culture followed by tobacco growers in Ontario, and presents interesting remarks on the improvements which should be effected in order to secure a lasting increase in the yields, and the establishment of a uniform and improved type of the Burley variety.

Besides the testing of new varieties and the continued study of various tobaccos already examined last year, our work at the Central Experimental Farm has included a study of the various methods of growing seed plants. The results arrived at in this preliminary study are mentioned in Bulletin No. A-6, Part I, of the Tobacco Division. The conclusions stated in this bulletin will, it is hoped, be acted upon by our growers of tobacco seed, and the varieties best adapted to our soils and climate will henceforth be kept pure, much to the benefit of the tobacco industry.

Through our experimental plots at St. Césaire we were able to make a splendid selection of seed plants, and the product of this special culture (about 10 lbs. of selected seeds) has been distributed to the growers of tobacco in St. Césaire and Montcalm towards the end of March last. This is the first official distribution of seeds of Canadian tobacco. Good results are expected from it, and we hope further to extend the growing of seed plants during the campaign of 1909-10. We will then have reached the object aimed at for two years: the production of our own seed in Canada, and the establishment of acclimatized varieties in certain sections.

Towards the latter part of the summer of 1908 a special mission was accomplished in Virginia and North Carolina. In the course of this mission we were able to make a study of the methods of culture of yellow American tobaccos and of the special curing processes in use. The practical result of this mission was the establishment of an experimental station in Essex county which, whilst being chiefly devoted to the study of the methods susceptible to effect an improvement in the production of Canadian Burleys, will also take up the culture of yellow tobaccos of the Virginian types.

As to the general results of the campaign of 1908-9, the following statements may be made:—

That in Quebec the proportion of industrial tobaccos is continually increasing. The quality of some of these products cannot be contested; certain manufacturers were enabled thereby to open new establishments for sorting and curing.

The results obtained this winter with tobaccos grown in the vicinity of Montreal (Rouville, Montcalm), and particularly at Farnham, are quite remarkable, and form the best object lesson that can be had of the future of 'wrapper type' in the province of Quebec.

In Ontario, the area in tobacco was greatly reduced in 1908, and the setting out of the plants was done very late. However, we were able to study a variety of improved Burley, the growing of which will be started on a large scale in 1909, and under better conditions, on our experimental station.

Lastly, the establishment of special stations in Essex, Ontario, and in Montcalm and Rouville, Quebec, puts us in a position to obtain practical results, as they permit us to make local demonstrations of some methods of culture which, we trust, will enable us to improve our products, increase our yields, and satisfy the ever-increasing needs of the tobacco industry in Canada.

I have the honour to be, sir,

Your obedient servant,

F. CHARLAN.

The Honourable
The Minister of Agriculture,
Ottawa.

APPENDIX No. 17.

INTERNATIONAL INSTITUTE OF AGRICULTURE.

J. G. Rutherford, V.S., H.A.R.C.V.S.

OTTAWA, March 31, 1909.

SIR,—I have the honour to present my report as delegate from Canada to the Permanent Committee of the International Institute of Agriculture covering the period between the date of my appointment in May, 1908, and the last meeting of the committee in November of the same year.

Although I was also a delegate to the General Assembly, I have not touched upon the proceedings of that body, with which you, as head of the Canadian delegation and vice-president of the Institute itself, are entirely familiar.

As you have informed me that you propose to deal in your annual report with the origin of the Institute and the earlier stages of its history, prior to the holding of the first regular meeting in May, 1908, I will, therefore, confine myself to a brief relation of my own experiences as a member of the Permanent Committee, and to such comments and remarks on the organization and work of the Institute as, in my opinion, are most worthy of note.

Leaving Ottawa on May 7, I proceeded to London, where through the courtesy of Lord Strathcona, High Commissioner for Canada, I was promptly put in touch with Lord Carrington, President of the British Board of Agriculture, and with other officers of his department interested in the work of the Institute.

I found that Sir Thomas Elliott, Permanent Secretary of the Board, and also the official delegate of Great Britain and Ireland, had already gone to Rome. As the date fixed for the first meeting of the Permanent Committee, namely, May 23, was rapidly approaching, I remained in London no longer than was absolutely necessary, and starting on the 19th, reached Rome on the evening of the 21st.

Immediately upon my arrival I presented my credentials to Sir Thomas Elliott, who, having been a member of the British delegation which attended the first meeting called in 1905 by His Majesty, the King of Italy, to consider and discuss the original project, was familiar with every phase of its history. He very kindly and courteously then and thereafter, extended to me the full benefit of his knowledge and experience, which, I need scarcely say, were of the greatest possible value, giving me, as they did, a grasp of the whole situation, which otherwise would have been difficult if not impossible of attainment.

I soon found that, as usual, when many men of many minds, and especially of many nations, are gathered together to discuss any project, there were many opinions, and many points of view. The natural tendency to divergence of thought under such circumstances, was in this case accentuated by the fact that the scheme under discussion was one of the most remarkable and extraordinary which had ever been proposed in the whole history of mankind.

That all the civilized nations of the world should unite in forming a cordial commercial union, for the purpose of conducting jointly a business office, and that in the Eternal City itself, was unquestionably a proposition to make men think. As the thinking was in full swing and was being done by thoughtful men, whose minds had all been trained in different schools, and whose views were coloured by their national, to say nothing of their individual, characteristics and environment, it is not surpris-

ing that the viewpoints varied widely, and that there were many different conceptions of the future work and well-being of the International Institute of Agriculture.

Ideas were in the melting pot and although the furnace was not yet in full blast, the process of solution had already begun.

Conferences were constantly being held, and discussions more or less animated, according to the national temperaments of those taking part, were everywhere in evidence.

It was soon apparent that unless the delegates of the greater nations could be brought to agree upon some line of policy reasonably definite and mutually satisfactory, before the actual meetings began, there would be more argument than action and but little hope of a logical outcome. Fortunately for all concerned, the delegates from the larger and more important countries were, almost without exception, men of sound sense, good judgment, and more or less diplomatic experience.

This being the case, compromise became the order of the day, and by giving here and taking there, the adoption by these gentlemen, of a general policy, so far at least as the initial steps were concerned, was soon rendered possible.

On Saturday, May 23, the Institute was formally opened by His Majesty the King of Italy, Victor Emmanuel III, who was accompanied by the Queen and his Imperial suite, as also by many members of the Italian government and other prominent personages.

The opening took place in the magnificent building in the Villa Borghese, specially erected by His Majesty for the accommodation of the Institute.

This building which was at that time, scarcely completed but which was almost finished at the time of the later meeting in November, is an exceedingly handsome and commodious structure. From an architectural point of view, it leaves nothing to be desired, while it is sumptuously furnished and decorated throughout with fine specimens of modern Italian art. Its situation is excellent, commanding a beautiful view of St. Peter's and the Hills across the Tiber.

Speeches of congratulation on the successful opening of the Institute were addressed to His Majesty by M. Signor Tittoni, Minister for Foreign Affairs, Senator Count Faina, President of the Royal Commission, and His Excellency M. De Carvalhoe-e-Vasconcellos, Portuguese Minister at Rome, who, as the oldest member of the Diplomatic Corps had been selected to speak on behalf of the Foreign delegates.

In these addresses, as was perhaps natural under the circumstances, His Majesty the King of Italy was given the entire credit for the formation of the Institute, although among the delegates from other countries there was a very general feeling that the name of Mr. David Lubin, who first conceived the idea of such an international organization and to whose energy and enthusiasm its actual realization was due, might at least have been mentioned.

On Monday, May 25, the Permanent Committee met for the first time in one of the fine rooms of its new palace. The following is a list of the delegates present, the names of the countries being arranged alphabetically:—

Argentine Republic—His Excellency M. R. Saenz Pena, Argentine, Minister of Italy.

Austria—M. le Chev. de Pozzi, Statistician to the Imperial Department of Agriculture.

Belgium and Luxemburg—M. O. Bolle, Director of the Department of Agriculture.

Bulgaria—M. C. Seraphimoff, Governor of the Agricultural Bank of Bulgaria.

Chili—M. L. S. Rodriguez, Consul General for Chili at Rome.

China—M. Tching, Sound Tchai, Secretary of the Chinese Legation at Rome.

Costa Rica—M. R. Montealegre, Costa Rican Minister at Rome.

Cuba—M. C. de Pedroso, Chargé d'Affaires de Cuba pres le Gouvernement Italien.

Denmark—M. H. H. Konow, Danish Consul at Rome.

Egypt—His Excellency Boghos Pascha Nubar.

France—M. Louis Dop, Asst. Chief of the Cabinet, Dept. of Agriculture, Paris.

Great Britain and Ireland—Sir Thomas Elliott, K.C.B., Permanent Secretary of the British Board of Agriculture, London.

Australia—M. J. W. Taverner, Agent General for Victoria in London.

Canada—M. J. Gunion Rutherford, Veterinary Director General and Live Stock Commission.

India—Sir Edward Buck, K.C.S.I.

Germany—M. Dr. Mueller, Member of the Upper Council.

Hungary—M. E. Miklos de Miklosvar, Former Secretary of State for Agriculture, and Member of the Upper House.

Italy—M. le Count E. Faina, Senator du Royaume.

Japan—M. M. Kameyama, Chargé d'Affairs for Japan at Rome.

Mexico—M. G. A. Esteva, Mexican Minister at Rome.

Montenegro—M. G. Volpi, Director General of Monopolies of the Principality.

Netherlands—M. H. J. Lovink, Director General of Agriculture.

Norway—Dr. A. Fjelstad, landed proprietor and farmer.

Portugal—His Excellency M. de Carvalho e Vasconcellos, Portuguese Minister at Rome.

Roumania—M. Fleva Nicholas, Roumanian Minister at Rome.

Russia.—M. le Baron M. Korff-Schmising, Member of the Russian Embassy at Rome.

Spain—M. Echeverria Auguste.

Sweden—M. le Baron, C.N.D., de Bildt, Swedish Minister at Rome.

Switzerland—M. J. B. Pioda, Swiss Minister at Rome.

Servia—M. B. J. Soubotitch, Secretary of the Servian Legation at Rome.

United States of America—M. David Lubin.

The proceedings were opened by M. Pompilj, Under Secretary of State for Foreign Affairs, who briefly welcomed the delegates on behalf of His Excellency Signor Tittoni, Minister of Foreign Affairs, who was unfortunately ill and therefore prevented from attending in person. M. Pompilj asked that the delegates proceed to nominate a president and vice-president to the Permanent Committee, who might immediately enter upon their duties.

In reply His Excellency M. de Carvalho-e-Vasconcellos, delegate for Portugal, Dean of the Diplomatic Corps in Rome, who had, at an informal meeting of the delegates, been selected to speak on their behalf, expressed thanks for the courteous reception which had been extended to them by His Majesty the King of Italy and by His government, and great regret that His Excellency Signor Tittoni was unable to be present. He then proposed the name of Count Faina, the delegate for Italy, as president of the Permanent Committee of the International Institute of Agriculture, adding that he felt sure that in so doing he was expressing the unanimous sentiments of his colleagues.

Count Faina having been elected by acclamation, and having on motion, taken the chair, expressed his thanks to the assembly for the honour of his selection to direct the work of the committee, and the hope that, with their assistance, he would be able to justify the confidence which they had reposed in him. He then suggested the name of M. E. Koch, representative of His Majesty the King of Italy, and who had been, from the first, intimately connected with the work of the Institute, as a most suitable person to fill the office of Secretary General. This proposal was immediately adopted by the committee.

The President then announced that two matters remained to be dealt with, namely the selection of a vice-president, and the choice of an official language.

Upon motion of M. Louis Dop, delegate for France, supported by Sir Thomas Elliott, delegate for Great Britain and Ireland, it was agreed that the nomination

of a vice-president should be postponed until all the adhering countries had named their proper official representatives.

The question of the official language to be used in the meetings of the committee evoked considerable discussion in which many of the delegates took part. It was finally decided that French should be the official language of the Permanent Committee, but that delegates might be permitted, as an exception, to use another language in debate.

It was also decided that delegates should be permitted to introduce technical experts to assist them in their duties by explaining special matters, and should occasion require, by acting as interpreters.

The real business of the meeting then began.

With the view of facilitating matters, the Italian Government had, through a specially appointed Royal Commission, prepared a project for the work of the Institute, copies of which had been previously sent to the governments of the adhering nations. This project, while expressing the views of Italy, found but little favour in other countries, inasmuch as in many respects, it was not in strict accordance with the provisions of the international agreement reached in 1905.

Many of the delegates had come to Rome with definite instructions to oppose this Italian project. The Government of France had devoted special attention to the subject and had prepared a lengthy and comprehensive minute, which, while expressing the most friendly spirit towards and kindly interest in the Institute, pointed out that it would be impossible for the French representative to agree to many of the propositions embodied in the Italian project. In this minute the views of France were clearly and concisely set forth, and were undoubtedly entirely consistent with the terms of the convention.

The instructions of many other delegates were generally in accordance with the views of France, and the Italian project was finally rejected as a basis of discussion, its place being taken by a new project, prepared, so far as the first meeting was concerned, by a special sub-commission selected from among the delegates to the Permanent Committee.

A copy of this will, I presume, be embodied in the historical portion of your own report. This being the case, I have not thought it advisable to reproduce here either the Italian project, or the French criticism of that document.

The debate which led up to the appointment of the special sub-commission, above referred to, was very interesting, and, as it embodies in full the opinions of the French and German delegates, and, in this way, throws much light upon the objects of the Institute, I have thought it advisable to include it in my report.

On the following day, May 26, M. Lovinck delegate from the Netherlands proposed the following resolution:—

'Whereas, it will be necessary to convoke the General Assembly of the International Institute of Agriculture during the current year, in order that the Institute be not delayed in exercising its proper functions; and

Whereas, having this in view, it would be desirable to present to the adhering governments, as soon as possible, a definite plan of organization, and a programme of the work to be done, in order to give them time to approve the same and to give the necessary instructions to their respective delegations; and

Whereas, the Permanent Committee would find itself confronted by grave difficulties if it attempted to deal with all the details of a definite project in the course of general discussion;

Therefore the Permanent Committee after having summarily discussed the project presented by the Royal Italian Commission, resolves as follows:—

First—To name a Commission ad hoc, composed of twelve members and charged with the preparation of the details of the plan of organization and of the operation of the Institute, taking into account the wishes and proposals expressed in the general

discussion, as also the Italian project. (Members of the Permanent Committee from each country to have the privilege of taking part in the sittings of the Commission.)

Second—To ask the Commission to work in such a manner that the propositions relative to the organization of the programme of work and to the financial budget might be submitted with the least possible delay to the Permanent Committee.'

He presented at the same time, a list of twelve delegates whom he suggested as members of the Commission.

M. Louis Dop, delegate from France, explained the reasons why he could, so far as he was concerned, accept the proposition of M. Lovinck only on condition that all the members of the Committee might be admitted to take part directly in the work of the Commission, and asked that the nomination of the Commission should be deferred until the Permanent Committee had finished the general discussion of the plan of organization of the Institute.

M. Fleva, delegate from Roumania, while fully appreciating the arguments advanced by M. Dop, pressed the Committee to divide the two questions. He proposed to enter immediately into a general discussion of the Italian project, and to reserve until afterwards the question of the names of the Commission.

M. Louis Dop, delegate for France, agreed and together with M. Lovinck, submitted to the Committee the following proposition:—

'The Permanent Committee resolves to proceed to the general discussion of the plan of organization, taking for a basis, the project prepared by the Royal Italian Commission.'

M. De Carvalho e Vasconcellos, delegate for Portugal, emphasized the necessity of having rules of order and proposed to adopt, as provisional, those used in the discussions of the International Conference of 1905.

The President, after reading the Rules of Order of 1905, pointed out that some of these were not applicable to the present case.

The proposition of the Portuguese delegate was, however, unanimously accepted.

The general discussion upon the Italian project was opened by M. Louis Dop, delegate from France, who spoke as follows:—

'The government of the French Republic, which has done me the honour of appointing me as its delegate to the International Institute of Agriculture, took part in the most thorough and active fashion in the initial steps for the creation of this Institute in June, 1905.

France is proud and happy in the thought that most of the propositions made by her in the conference of 1905, were accepted, to form, with the consent of the adhering states, the Articles of the final Act, which, to-day, governs our proceedings.

The prominent part which my country played in 1905 in furnishing a happy solution of the problem which was submitted to the deliberations of the conference, imposed on France the direct duty of manifesting, from the beginning, her intention of co-operating steadily in the grand work for which we are now gathered here. This is the reason why the government of the French Republic has, as in honour bound, assumed the agreeable duty, of nominating a permanent delegate to the International Institute of Agriculture from the moment of its being notified of the meeting of the Permanent Committee.

It is for me an honour to represent here the agricultural interests of France. This great honour confers upon me at the present moment the pleasure of interpreting faithfully the sentiments of profound gratitude which fill the hearts of all the French people for the noble initiative of His Majesty the King of Italy, Victor Emmanuel III. This sentiment of appreciation will remain in the hearts of my compatriots the good peasants and farmers of our beloved France eternally, like the great royal work which is to-day crowned with success in so complete a fashion.

France experiences also a sweet emotion at the thought that the generous initiative of the beloved sovereign of a beloved nation has conferred upon humanity a

new instrument of union, of universal peace and concord. We must to-day assure ourselves of the proper progress and operation of this instrument.

Animated as we all are with a lively desire and firm wish to have our respective countries benefited by the new institution, we must be inspired in the performance of our duties by the spirit of understanding and solidarity, and the sentiments of devotion to our united interests, which have animated the Royal Italian Commission and its eminent President, Count Faina.

In the name of France I proffer to our sympathetic President and the members of the Commission which he has directed with so much ability and distinction the homage of gratitude.

I would fail also in a very agreeable duty if I did not observe that our very distinguished Dean, His Excellency the Portuguese Minister, M. de Carvalho-e-Vasconcellos has interpreted faithfully and eloquently our common sentiments. I trust that he will permit me to proffer him the sincere thanks of my country, as I also address them to our excellent colleague and friend M. Lubin, whose generous and far-sighted idea permits us to-day to know each other better and therefore to esteem each other more.

We must not however permit ourselves to believe gentlemen and dear colleagues, that our institution is a mutual admiration association; now that the duties of gratitude have been accomplished we must go to work with a view of showing to the farmers of the entire world that we are fully conscious of and have a definite idea of our duties and of the responsibilities which rest upon us.

What should be our method of work? What principles should direct our efforts in searching for a satisfactory and early solution of the problem submitted to us?

Gentlemen, the beauty of this palace which we owe to royal munificence is emphasized and illumined by a series of happy mottos which remind us that Italy is also the land of classics to which we owe the greater part of our intellectual culture.

In order to inspire and direct our labours I would have wished to suggest to the able architect of this palace that a motto, less literary but more symbolical, should have been inscribed on the wall of the chamber which shelters us and our duties.

The sentence which I have in mind is a synthetical and concise expression of the decisions of the Conference of 1905, namely:

'The Institute is a State Institution.'

From these words is derived the essential principle contained in the last paragraph of Article 9:—

'All questions relating to the economic interests, the legislation and administration of any particular state, must be excluded from the sphere of the Institute.'

These two great fundamental principles constitute the very spirit of the final act of the Conference of 1905.

It follows therefore that we must consider this Act as a constitutional charter, a guarantee of our independence and our liberty, a charter to inspire, to direct and to limit our decisions and our acts.

From the point of view of the French Government, all the decisions of the Permanent Committee should flow from these sources, as a corollary follows the demonstration of a given theorem.

We are here, gentlemen and dear colleagues, in an assemblage where science, pure and simple, should be the inspiration of all our acts.

You will therefore regard as only natural my endeavour to apply to our work the method of Descartes, which can be perhaps for us a guiding thread through the labyrinth of ideas and projects arising from the problems submitted to our deliberations.

The essential principle of the Cartesian method is, as you are aware, that of elimination.

Let us then eliminate from our programme everything which is not strictly included within the letter and the spirit of the final act of 1905.

What must we eliminate?

(1) The details of the organization and operation already provided for in the Convention of 1905;

(2) The details of operation incompatible with a state institution, as for example, official or private correspondence of the Institute, taken from sources other than official or those under official control;

(3) All the details of organization and of registration of agricultural labour outside of the special case of the rates of pay expressly provided for by the Act of 1905;

(4) All acts or decisions empowering the Institute to initiate meetings of private associations;

(5) Any intermediary role between associations or co-operative societies;

(6) Every procedure which might possibly confer on the Institute the power of communicating with States, otherwise than through the medium of official delegates, or to receive directly information from private associations, otherwise than through the official medium of governments.

Such is gentlemen, in the opinion of the French government, the negative part of our programme so far as refers to scientific questions, an opinion which I shall have the honour to explain and defend, as the various questions come up for discussion.

But have no alarm gentlemen; the programme conceived by the French government will not be a negative programme.

Our scientific method of elimination can only result in the adoption, according to the Pasteur school, of a method of reconstruction, capable of giving body and soul to the different living elements.

Let us then adopt, for the formation of the concrete and practical part of our programme, the experimental method, which is alone capable of keeping us free from self deception, and of assuring the ultimate success of our decisions.

If we rigorously apply this method, we need only provide for the Institute such working parts as will enable us to immediately attain our purpose.

Now experience and reason teach that the only goal immediately attainable is the grouping or amalgamation at the Institute of all the statistics gathered by the different countries, possessing at the moment an official service of agricultural statistics and information.

A majority of the great States of Europe and America have already organized in their respective countries such offices of statistics and information.

Let us confine ourselves for the moment to the creation at Rome of a Bureau of centralization of comparison and of unification of these different informations. In doing this we shall have already accomplished a very important work sufficient in any event to occupy, during its first stages, the energy of the Institute.

Let us leave to the future the care and development of the seeds sown in a fertile and well prepared soil.

'Let us be modest' is the formula of our success.

Let us study to confine our ambition to results easily and speedily realized. Let us consider only as a desirable, but at present an unattainable ideal, the various functions of acting as an intermediary between associations, of acting as a Bureau of emigration, as an inspirer of congresses, as a regulator of prices and markets, or in the formation of unions and federations among associations and co-operative societies, &c., such as some generous spirits would wish to have our Institute undertake.

Let us, for the present, leave these functions to the different States and leave to the statistics which we shall publish and to the farmers who will read them, the task of drawing practical conclusions which these official statements contain.

As regards the practical organization of our offices, the French government would willingly agree from the inception of the work of the Institute, to the formation of five bureaux, as follows:—

(1) Bureau of the Secretary General; internal administration; staff and material; accounts.

(2) Library, archives, printing, distribution of printed matter, department of publications, bibliography.

(3) Bureau of agricultural statistics, charged with paragraphs (*a*), (*b*) and (*c*) of Article 9 of the Convention.

(4) Bureau of plant diseases charged with paragraphs (*d*) of Article 9 of the Convention.

(5) Bureau of co-operation, of assurance and of agricultural credit, charged with paragraphs (*e*) and (*f*) of Article 9 of the Convention.

Such are, gentlemen and dear colleagues, the scientific principles which have inspired and dictated the precise instructions which I have received from the French government, with the view of reaching rapidly a practical and easily attainable result. I am persuaded, gentlemen, that we will be wise enough to take as an inspiration that great and generous motto the "unita d'intento," which, at the call of Mazzini, enabled Italy, this great and noble nation, to realize her unity.

We also will be wise, gentlemen, to realize this "unita d'intento" which, according to the poetic expression of our distinguished and sympathetic President, Count Faina, will enable us to put into practice human solidarity, and we shall see dawn of the long wished for day when the different social classes who labour together in the cultivation of the soil shall unite in garnering the wheat.

Gentlemen, and dear colleagues, will you excuse me? I have been perhaps a little long and the weather is warm.

We, however, who represent the toilers of the soil, do not fear the heat. With the great poet Carducci, we love the rays of the bright sun of Italy, whose rays fertilize and fecundate the heavy labours of the workers of the fields, and whose same beams will also reward our earnest efforts with a rich harvest of blessings of which, later, humanity will be proud.

At the afternoon session, Dr. Mueller, delegate for Germany, spoke as follows:—

'Gentlemen, it is my duty to first declare that I share entirely, as do we all, the sentiments of appreciation towards His Majesty the King of Italy, the Italian government, the Royal Commission, and above all towards our President, sentiments which M. Louis Dop has interpreted in a manner so eloquent and sympathetic.

In my opinion the object of our discussion is to give suggestions to the Commission, which we are about to name. This is my reason for explaining the points of view which will guide me in taking part in the work of the Permanent Committee, with, I may add, the entire approval of my government, which leaves me otherwise quite at liberty to seek, in common with my colleagues, the means necessary and useful to develop our Institute and, in a word, to protect and second the common agrarian interests of all the countries which have adhered to the International Institute.

I believe that the most important work of the Institute will be the organization of a service of information concerning the extent of cultivated land, the crops, the prices of and commerce in the principal agricultural products.

I have no doubt that this service, if well organized, will immediately be of great advantage to the interests of farmers and to the general economy of the whole world. This service being the most important of all those authorized by Article 9 of the Convention, I am of opinion that the greater part of the material and personal forces of the Institute, should from the first, be devoted to its inauguration.

For the other services, it will be sufficient to collect exact data upon practical and scientific progress throughout the world and to distribute them as widely as possible by publications, either periodical or as often as it is thought necessary.

As regards the work of the Institute in general, I believe that it will be necessary, to confine ourselves strictly to the provisions of Article 9 above mentioned, although this will not prevent us from giving our attention to questions which, while not literally enumerated in that article, are without doubt therein implied.

As for the data which are to be placed by each state at the disposal of the Institute, it is absolutely necessary, in my opinion, that these must be authentic, rapid and punctual, and that consequently there can be only taken into consideration data of which the authenticity is recognized by the state communicating them.

As for the operation of the Institute, I think it is necessary, to utilize the scientific and practical experience and the special methods of work of the different nations, an international principle from which we have already profited in forming the Permanent Committee, and which should also be of great use in the composition of the different bureaux.

As for the organization of the bureaux, with the view of simplifying our work as much as possible, I believe that it will suffice for the present, to form three divisions, namely:—

(1) Division of the Secretary General, which will take charge of the general administration, the library, the publications, accounts, and of the supervision of the staff.

(2) Division for the securing of information regarding the principal agricultural products and plant diseases.

(3) Division dealing with information regarding economic and social institutions and questions concerning manual labour.

Lastly, with the view of ensuring the effective co-operation of persons of outstanding ability, I believe that it will be useful to put the three chiefs of divisions under the direct control of the Permanent Committee.'

After Chevalier de Pozzi, delegate for Austria, had expressed his sympathy with the views of Dr. Mueller, M. E. Miklos de Miklosvar, delegate for Hungary made, in his turn, the following declaration:—

'Our International Institute of Agriculture, divested of all political considerations, will serve, I am sure, as a bond of union between the peoples, rendering their relations more cordial, and assuring an extension of the ideas of co-operation and mutuality, the application of which to agriculture appears to be the characteristic of modern times and the principal cause of the greater part of the progress which has been made.

The role of the International Institute may be in the future very considerable, but it is necessary that our activity be limited at the commencement, that we walk slowly but surely, and that we hold strictly to the provisions of Article 9 of the Convention. 'He who goes slowly goes safely,' says the Italian proverb. Let us never lose sight of the fact that we must always remain on a solid foundation and that we can only work with the aid of correct and controllable data furnished by the different governments.

We shall have nothing to fear if we travel a path solid and well defined.

Our business will go without difficulty if God is our help and science our guide.

As regards the internal organization of our Institute and its operation, I am convinced by the forces of facts, as also by my personal knowledge of different countries that we can for a beginning, concentrate our work in two great divisions, namely:—

(1) Agrarian information.

(2) Agrarian questions and institutions and an economic social nature.'

Sir Thomas Elliott, delegate for Great Britain and Ireland, declared that he fully shared the ideas set forth by his colleagues of Germany, Austria and Hungary, and believed also that the functions of the Institute should above all be devoted to the securing of statistics, but that it was very necessary to distinguish between statistics of a static order and statistics of a dynamic order.

He hoped that the Institute would confine itself to these last, that is to say to living satistics. This would be the surest way of observing in its true spirit the Convention of 1905.

The President thanked the delegates for the kind words which had been pronounced in reference to him, and with a view to answering in a complete fashion the remarks which had been made, asked M. Louis Dop, to indicate point by point the differences which existed between the project of the Royal Italian Commission and the ideas of his government.

M. Louis Dop, delegate from France, remarked, firstly, that the Italian project reproduced the articles of the Convention of 1905, and pointed out that the reproduction of these articles was useless.

Upon the declaration of the President that these articles were not an exact reproduction of the articles of the Convention of 1905, M. Louis Dop asked in the most formal manner that the articles of the Italian project might be considered in such a way as to preserve in future discussions the full force of the article of the final Act of 1905. He expressly requested that this reservation should be inserted in the minutes.

The President stated that in order to conform to article 5 of the Convention quoted, it would be necessary to prepare a project of organization and operation for the Institute.

Article 8 of the Convention stated that the Committee makes its own rules of order. The Royal Commission believed that for the rules of order of the Permanent Committee it was best to hold closely to the procedure fixed by the Convention. This, however, does not imply a renewal of the discussion of these principles. On the contrary their reproduction should be considered as a confirmation of their full strength. He was quite satisfied that he would be given an opportunity of explaining to the Assembly that the intention of the Royal Commission was not and should not be considered a modification in any way of the letter or the spirit of the Convention.

M. Louis Dop called the attention of the Permanent Committee to another point marking the difference between the two projects. He thought that everything concerning statistics should be centralized in a single bureau, as well as all information regarding agricultural products and rural labour. In fact, following Article 9 of the Convention, the task of the Institute, as far as concerns labour, should be limited to the statistics of agricultural wages, whereas in the Italian project the data relative to emigration, permanent and periodical, are discussed.

The President explained the principles followed by the Royal Commission, which had to recognize that it would have been very difficult and almost impossible to determine exactly the wages of rural labour, because of the numerous and different elements employed to establish the measure and the real value of these wages which are often paid in kind and which vary in each country and in each season, both in regard to different agricultural operations and to what the English call the 'standard of life.' So much the better for the work of the Institute. If the Permanent Committee can find the means of collecting and presenting exact and precise data. The Royal Commission had recourse to data relative to emigration in order to determine to what extent it was affected by the law of supply and demand.

M. Louis Dop, delegate from France, stated that very precise data as to the rates of agricultural wages are furnished to the Department of Agriculture of the Republic. On the other hand, one can only give what one has. He insisted upon the convenience of concentrating in the Bureau of Statistics data relative to manual labour.

As far as concerns the organization of the services, differing from his colleagues of Germany and Austria, he was of opinion that it would be necessary to establish a special bureau for diseases of plants.

Many questions of a statistical kind, but above all of a technical and scientific nature, applied to the argument that it is not convenient to group data relative to the diseases of plants in the Bureau of General Statistics.

M. Konow, delegate from Denmark, stated that his government had instituted a special bureau charged with furnishing information to the International Institute of Agriculture and with the distribution of information, which, in its turn, the Institute would undertake to furnish. He thought that other countries should form similar bureaux, to serve the Institute, which, only by such means would be able to fulfil its functions in a complete and effective manner.

His Excellency Boghos Pacha Nubar, delegate from Egypt, stated that in the preceding sitting the committee had decided to only open a general discussion upon the project of the rules and organization of the Institute. They should, therefore, confine themselves to declarations of a general order, and if no one had anything more to say, it only remained to nominate the commission mentioned in the proposition of the delegate from the Netherlands.

The President read again the text of this proposition and asked the committee if it wished to elect by acclamation the list of members of the proposed Commission, handed to him by Mr. Lovinck.

M. Louis Dop proposed to add to the list the names of the delegates from Spain and Denmark.

The list being put to the vote was approved by acclamation.

It is as follows:—

(1) His Excellency Boghos Pacha Nubar, delegate from Egypt.
(2) Sir Edward Buck, K.C., S.I., delegate from India.
(3) M. O. Bolle, delegate from Belgium.
(4) M. Louis Dop, delegate from France.
(5) Sir Thomas Elliott, delegate from Great Britain and Ireland.
(6) Count E. Faina, delegate from Italy.
(7) M. Fleva Nicolas, delegate from Roumania.
(8) M. H. J. Lovinck, delegate from the Netherlands.
(9) M. E. Miklos de Miklosvar, delegate from Hungary.
(10) M. le Mueller, delegate from Germany.
(11) M. Chevalier de Pozzi, delegate from Austria.
(12) M. J. Gunion Rutherford, delegate from Canada.
(13) M. Echevarria Auguste, delegate from Spain.
(14) M. H. H. Konow, delegate from Denmark.

May 28, 1908.

The President proposed to the Permanent Committee to add three members to the Commission named on the 26th, to wit, His Excellency M. Saenz Pena, delegate from the Argentine; M. le Professeur Vieira Souto, delegate from Brazil and M. G. S. Estava, delegate from Mexico.

The President's proposition was approved.

The President further announced that the Commission above mentioned had nominated a sub-commission consisting of the delegates from France, Germany and Great Britain and Ireland, charged with preparing a general plan of the rules of order of the Permanent Committee. This general plan having been edited, and the Commission having decided to submit it immediately to the Permanent Committee, the President stated that it would be distributed as soon as possible to the members of the Committee at their respective residences in order to allow their examining it and discussing it the next afternoon.

May 29, 1908.

The President opened the general discussion on the plan of the rules of order for the Permanent Committee as edited by the sub-commission.

His Excellency M. Boghos Pacha Nubar, delegate from Egypt then read the following declaration:—

'Gentlemen,—The project submitted to us by the sub-commission far exceeds in importance the work which it was asked to perform. It was charged by the Commission with the elaboration of the simple interior rules of order for the Permanent Committee, but our colleagues, without being checked by the surfeit of work imposed upon them, have enlarged the scheme and have at the same time drawn up a project for the organization of the different bureaux and services of the Institute.

In drawing attention to this fact my intention is not at all to criticise, but rather to bestow a well merited eulogy and above all to thank our colleagues of the sub-commission for the immense mass of work which they have performed in so short a time with an activity and devotion which I am sure we ought to recognize.

Each of us has certainly reflected on the questions which present themselves regarding the organization of our Institute and has sought, as I have sought, to find a solution as simple and as free from complication as possible, with a view of making easy in practice the application of rules of procedure in accordance with our Convention of 1905.

For my part, I have reached a conclusion that it would be difficult to separate in this work the interior procedure of the Permanent Committee from the general question of the organization of the Institute. I think that the questions overlap to such a degree that the best solution, the one which would eliminate every complication and every practical difficulty would be to combine them and have only one general constitutional organization. My intention was to propose this to the Committee. I may, therefore, tell you how pleased I am that the sub-commission has arrived at the same conclusion and that better still, it has prepared the complete project which is submitted for your deliberations. I shall permit myself, during the discussion of the articles, to make some observations and perhaps to ask some modifications, but before passing to that discussion, I wish to thank my colleagues of the sub-commission for the spirit which has reigned in the editing of this project and in a very special manner on account of the articles governing vote by state in the commissions. In proposing that this vote be made by state and giving a single vote to each delegate and not the number of votes fixed by the group to which he belongs, our colleagues of the sub-commission, who all three belong to the first group, and have in consequence the right to five votes each in the Permanent Committee, have given the best evidence of the sentiments of equity and liberality which animates them towards the delegates from states belonging to less important groups. This breadth of view, which, I have no doubt is shared by our other colleagues, is to us, a sure guarantee of the spirit and the sentiments which will govern our labours and therefore of the success of our Institute.

M. Miklos de Miklosvar, delegate from Hungary approved the sentiments expressed by his colleague, the delegate from Egypt, regarding the excellent work accomplished by the sub-commission, but thought it his duty to make certain suggestions as to the organization of the Institute, differing in some degree from the principles laid down by the sub-commission and proceeded to read these in detail.

From this time on the Permanent Committee devoted itself entirely to the discussion of the rules of order and the organization which had been prepared by the sub-committee of three.

These comprised (1) the official language; (2) the powers and duties of the President, Vice-President and Secretary General; (3) the convening and procedure of the Permanent Committee;

(4) The organization of the Institute itself, the Committee recommending three divisions:—

(*a*) That of the General Secretary;

(*b*) That of statistics and general agricultural information, including plant diseases;

(*c*) Social and economic institutions, including agricultural co-operation and credit;

(5) The appointment of a sub-commission for the control of each of these three divisions;

(6) The engagement, qualifications, payment, and general control of the staff.

All these subjects were discussed in the greatest possible detail. The position, duties and status of the officers to be engaged, the terms of engagement, salaries, pensions, vacations and matters of a like nature, especially evoked many eloquent orations.

These discussions as a whole, occupied five lengthy sessions, at the end of which but little progress had been made in the task of deciding upon or defining the actual work which the Institute was supposed to perform

On the afternoon of June 6, being of opinion that there had been more or less waste of time, and that the energy and effort which had been expended in discussing these apparently minor details, might better have been devoted to the consideration of the actual work of the Institute, in a larger sense, I felt it my duty to address the committee as follows:—

Mr. President, as the representative of Canada, I desire, before the close of this gathering, to have the opportunity of making a few brief remarks with reference to certain phases of the work connected with the establishment of the International Institute of Agriculture, some of which have been dealt with, while others have been ignored, in the discussions of the committee in which hitherto I have taken little part.

In the first place, I desire to express, on behalf of the Government and the people of Canada, our appreciation of the noble and magnificent generosity shown by the King of Italy and his Government, in the manner in which the International Institute of Agriculture has been initiated and endowed.

The original conception of Mr. Lubin, noble as it was, would in all probability have remained, at least for many years, only a beautiful dream, but for the appreciation and support bestowed upon it by our friends of Italy, promptly seconded as they were by the other nations, who showed themselves quick to realize the gigantic possibilities of the idea.

As a rule, great bodies move slowly, and while true of corporations and even of nations, this old adage has scarcely been verified in the present instance, involving as it does the united action of practically the whole civilized world. It is but a little more than three short years since the proposal was first made public, and we now find ourselves gathered from all quarters of the globe established in a comfortable, handsome and permanent home, well advanced in the work of organizing what to the minds of thinking men is undoubtedly the greatest and most benevolent international scheme which has ever been conceived and the wide possibilities of which it is utterly impossible to overestimate. When one considers the many difficulties attendant upon the assimilation of the many widely different ideas which converge in an assembly of this kind, the progress which has been made is undoubtedly most gratifying, and reflects the greatest possible credit upon the working members of this committee, especially upon those of the sub-committee which worked almost day and night, labouring earnestly to prepare the exhaustive 'reglement' which has been the subject of discussion during the week just passed.

While in view of this earnest and conscientious work and its undoubtedly great results, it may appear somewhat ungrateful to venture into the field of criticism, I may be pardoned, as the delegate of a young, though vigorous and rapidly growing

agricultural nation, in which the instincts of business are perhaps more fully developed than those of sentiment, if I venture to suggest that the work achieved at this meeting, although unquestionably of great value, has been conducted on somewhat different lines from those which it might reasonably have been expected to follow.

Having travelled a much greater distance than any other delegate here present for the special purpose of securing for the Government of Canada definite and reliable information as to the exact nature and scope of the work for which this Institute has been created and which it is expected to perform, I am naturally somewhat disappointed at being compelled to return to my country possessed of but very little more practical information than I had before leaving home.

We have, as I have already stated, magnificent quarters and we have now as a result of our labours during the past fortnight a scheme fairly complete for the conduct of the office work of the Institute, but as to what that work is really to be, and as to how each of the adhering governments has to arrange for the performance of its share of that work, we have even now no practical or definite knowledge.

Speaking as a business man, and as one who has had a considerable experience in public affairs and in the organization of official work, I cannot refrain from expressing the opinion that it would have been better to devote more time to the consideration of the actual work of the Institute than to the many little details of its 'fonctionnement' and the classification and management of its officials, matters, which from my point of view, might with reasonable safety have been left largely in the hands of the Secretary General, and the other principal officers of the staff, who, if the Institute is to succeed at all, must be men of business capability, progressive ideas and above all sound common sense.

It may be said that this suggestion might have been made at an earlier stage of the proceedings, when action upon it might possibly have been taken. To this criticism I can only reply that, looking as I did upon the discussion and adoption of the 'reglement' as very largely a matter of form which would be generally accepted without much discussion, I was under the impression that ample time would be afforded for the consideration of the real work of the Institute, in accordance with the suggestion made by the honourable the delegate from the Netherlands, at our first meeting.

I feel the more keenly in regard to this matter because my chief, the Honourable Sydney Fisher, Minister of Agriculture for Canada, keeping in view the possibilities of this Institute, in the organization and development of which he has from its inception taken a keen interest, is contemplating a complete revision of the work of securing agricultural statistics in Canada. The reorganization of this service, which, while under existing condition entirely satisfactory from a national point of view, might perhaps be improved for international purposes, has been held in abeyance in the hope of this meeting deciding upon a definite plan, involving such a simplification and assimilation of the agricultural statistics of each adhering country, as would secure at least reasonable uniformity in the manner and method of their periodical presentation to this Institute.

Another point on which I think it is essential that a clear understanding should be reached, is as to the exact relations between the members of the Permanent Committee as individuals, on the one hand, and the Institute and its officers on the other.

While the Permanent Committee, acting as a body, must necessarily have full and complete control over the Institute, its conduct and its affairs, it should, I think, be laid down as a sound business principle that an individual member, as such, shall not interfere in any way with the work of the Institute or its employees. The proper accomplishment of the work for which the Institute has been created depends entirely on the existence of an absolute security that the information of which it is to become possessed will reach the public only at such times and through such channels as may be decided upon by the Institute itself. This being the case it is of the utmost importance that any outside interference with its officials should be absolutely impossible,

and that the discipline maintained among the staff should be of the most rigid character.

I do not know, Mr. President, whether or not I shall again attend a meeting of the Permanent Committee; I trust that at the November meeting, it will be possible for my minister himself to take part in your deliberations. Meanwhile, I desire to thank you, on behalf of myself and my colleagues, for the uniform kindness and courtesy with which we have been treated during our stay in Rome.

I would add that we who live across the Atlantic will continue to watch with interest and appreciation the progress of the great work, to which the King and Government of Italy have given such a noble impetus.

Baron Bildt, delegate from Sweden, seconded by M. Louis Dop, delegate from France, moved the following resolution:—

'With the view of assuring, from the foundation of the Institute, the progress of the different technical services, the Committee decides to entrust to the editing committee the task of establishing a definite and precise programme of the different statistical informations which will be asked from the various states and of presenting this programme, with the shortest possible delay to the Executive, who will be charged with forwarding it immediately to the delegates of the different states.'

His Excellency Boghos Pacha Nubar, delegate from Egypt, was of opinion that the task entailed in this proposition might with advantage be entrusted to the Commission charged with the definite editing of the articles and of the project relative to the pensioning and insurance of officials, and suggested the following modification:—

'With the view of securing a definite edition of the rules of order of the Institute, as also the two projects relative to the pensioning and insurance of officials and the Budget, the Permanent Committee names a special commission of eight members, whose powers will commence from the actual adjournment of the Permanent Committee and will expire at the date of its first meeting in the month of November next.'

This modification having been accepted by Baron Bildt and M. Louis Dop, was put to the vote and approved.

The following gentlemen were elected by ballot as members of the commission:—

The delegates from Germany, Argentina, Austria, Belgium, United States, France, India and Italy.

After the discussion of some minor matters, it was decided on the suggestion of the President, that the General Assembly should be convoked between the 20th and 30th of November next, and that the meeting of the Permanent Committee should precede such convocation by ten days.

M. C. e Vasconcellos, delegate from Portugal and Dean of the diplomats present, asked leave to give expression to his sincere sympathy and regard for the President, who had directed the sittings of the Committee so wisely and equitably, for his colleagues for the spirit of conciliation which they had shown in the course of the debates and lastly for the Secretary General and his co-workers who have contributed in so distinguished a manner to the rapid progress of the work. He had no doubt that these sentiments would be shared by all the members of the Permanent Committee.

The President then spoke as follows:—

Gentlemen and dear Colleagues, I thank you all from my heart for the good will which you have been so willing to show to me and I particularly wish to thank His Excellency the delegate from Portugal for the very kind words which he has uttered regarding me. If, at times, I have not been able to perform with satisfaction the duties which you have done me the honour of entrusting to me, I beg that you will not attribute it to lack of good will.

'I am greatly pleased that the International Institute of Agriculture has given me the opportunity of renewing old acquaintances and of acquiring new as also of

appreciating the eminent qualities of which the gentleman representing the various adhering states have given proof.

'In the name of my government and of the public opinion of my country, I pray you gentlemen to convey to the various countries which you represent our sincere regard.

'Thanks to your governments, it has been possible to give to the generous idea initiated by His Majesty the King, my august sovereign, a concrete form, and to place it upon a practical basis. Thanks to you, this great work of peace and solidarity has overcome its first difficulties which are always the greatest. It is now in progress and nothing will stop it, if you are willing, as I am sure you are, to aid it as you have aided it in the initial steps, with your experience and marked ability.

'This being the case, I do not say 'Adieu' gentlemen and dear colleagues, but 'Au revoir' and that soon.'

The Permanent Committee then adjourned.

The Commission of eight which was composed of Senator Count Faïna, delegate for Italy; Dr. Mueller, delegate for Germany; M. Louis Dop, delegate for Francee Sir Ed. Buck, delegate for India; Mr. David Lubin, delegate for the United States; M. O. Bolle, delegate for Belgium; M. Chevalier de Pozzi, delegate for Austria; M. R. Saenz Pena, delegate for the Argentine Republic; met for the first time on June 11, the only member absent being Sir Edward Buck, who had found it necessary to leave Rome.

At this meeting the principal subject discussed was that of the best mode of soliciting from the governments of the various adhering states statistical information desired for the use of the Institute.

Propositions embodying definite interrogatory schedules were presented by Dr. Mueller and M. Bolle, but after some discussion both were rejected on the representations of Count Faïna to the effect that the Italian Government had already sent out to the adhering governments, a series of questions, the answers to which in detail would serve the required object.

It was then decided to entrust to M. Louis Dop and M. Bolle the final editing and harmonizing of the articles of procedure approved by the Permanent Committee; to Dr. Mueller the working out of a system of pensions for officers; to Count Faina the study of systems of insurance, while to Count Faina and Dr. Mueller were also entrusted the preparation of the Budget; reports on all these subjects to be submitted to the Commission in the month of October..

The sub-commission next met on November 4, all the members being present with the exception of the delegate from the Argentine.

At the sessions, which lasted until November 9, there were also present from time to time, M. H. H. Konow, delegate from Denmark, Sir Thomas Elliott, delegate from Great Britain and Ireland, Dr. A. Fjelstad, delegate from Norway, and myself as delegate from Canada.

The work of the Commission at this time consisted entirely of a careful review of the rules of order and of the general plan of the work of the Institute, the latter comprising the various Permanent Commissions to be entrusted with the different branches of the work, the allotment of the staff and the Budget.

As all these matters were again fully discussed in the Permanent Committee and embodied in the report made by that body to the General Assembly, of which you yourself were a member, it is scarcely necessary to further allude to them at present.

The Permanent Committee was formally convened on November 16, delegates of thirty-one countries being present.

The President announced the addition to the membership of the Institute of the Republic of San Marino and the Italian colonies of Erythrea and Italian Somaliland.

It was agreed that as a special privilege the delegates from the United States, China and Japan should be assisted by their private secretaries.

The orders of the day having now been reached, the President announced that the first duty of the Commission was the nomination of the Vice-President. On motion of M. Estava, delegate from Mexico, seconded by M. Miklos de Miklosvar, delegate from Hungary, action on this head was postponed until after the session of the General Assembly, when the regulations of the Permanent Committee should be approved.

M. Louis Dop then read on behalf of M. Lubin, delegate from the United States, a communication giving the views of the country on the organization of the Institute.

The consideration of the rules of order, as edited by the Commission of eight, was then begun by another lengthy discussion on the question of the official language to be used in the debates of the Permanent Committee, Mr. Taverner, delegate from Australia, being the principal opponent of the adoption of the French language. The clause containing this provision was, however, formally passed with a slight verbal amendment which appeared to satisfy Mr. Taverner.

The committee then devoted itself to a rapid but careful consideration of the rules of order of the Permanent Committee and the organization of the Institute, its various permanent sub-commissions and its staff.

These matters having been disposed of, subject to the approval of the general Assembly, the question of the Budget came up for discussion on November 18.

On this subject Dr. Meuller, to whom in conjunction with the President, the task of preparing the Budget had been entrusted contributed a most comprehensive and exhaustive statement. In this statement he entered fully into a consideration of the Institute from various points of view. In fact so interesting and illuminating was his address that I have deemed it advisable to translate and present it here.

The allusions which he from time to time makes to the budget, while perhaps by themselves somewhat obscure, will be easily understood on referring to that document itself, which will, I presume, be embodied together with the rules of order and plan of organization in your own report of the proceedings of the General Assembly.

He spoke as follows:—

'Gentlemen,—The Commission of eight which you have charged with the preparation of the different propositions to be submitted for your consideration, has followed the method of modern economy in the division of work.

To our President and to myself the Commission has entrusted the financial part of our programme.

It is the same method of division of work which now leads me to explain to you, as reporter, this part of the programme, and to present to you the ideas and motives which have guided us. It is my duty to premise that while I have been charged with reporting this part of the programme, I have not performed the greatest part of the work. It is to our venerable President, Count Faina, that we owe the propositions which I shall lay before you; they are his ideas and his propositions, the result of his unceasing labour during the past summer, which have furnished the basis of the deliberations and decisions of the Commission in all that concerns this part of the programme. It is because of his position as President that he abstains from addressing you personally upon these propositions, which are chiefly the result of his own work.

I have told you, gentlemen, that I will report upon the financial part, that is to say, upon those articles of our procedure, which, in their definite consequences, find expression in the figures of our budget, or rather which furnish the most essential elements of our budget.

These articles refer to (1) The organic plan affecting the principle of the remuneration of our officers and the establishment of regulations governing their situation during the period of their service; (2) The system of retiring allowances, that is to say, the establishment of the guarantees which we will be disposed to accord to our officers in case of sickness, old age, death or dismissal.

Always gentlemen, in discussing these articles, we should not consider exclusively the consequences of a financial nature which they will have upon our budget, but also and perhaps in the first place, their effect upon the future of our Institute, that is to say upon the quality of our productive work, and the services which, on the foundation of our Institute, have been promised, not only to the agrarian world, but to the world as a whole.

You will find on page two of the minutes under the title 'Organic plan,' line one, the following phrase:—'The Commission adopts the following proposition; the Commission, after exchanging different points of view concerning the remuneration of officers, and of the inferior employees of the Institute, is in favour of drawing up a normal table of salaries for the different employees. This table will form the financial statute of the persons employed in the different services of the Institute and will establish upon a fixed and regular basis the pecuniary situation of the staff.'

As the different points of view have not been mentioned, I beg to draw your attention to several general observations. The organization to be established for our Institute is based—

(1) On its financial capacity;

(2) On its juridical nature;

(3) On the definition of its material character;

I say nothing of the good-will of the adhering governments, who ought to furnish us the material essential for our work, as to this I have no doubt.

I dwell a moment on our financial capacity; as you know gentlemen, this is actually very limited, but fortunately, there already exists to a certain degree, the possibility of its further development. After the two first years of existence the unit of subscription can be raised to a maximum of 2,500 francs.

We were obliged to keep in view, in formulating our propositions these two circumstances, and naturally we kept within the limits as actually drawn, but we have always borne in mind the fact that at a given moment there would be a possibility of improving the financial conditions of the Institute.

Now as to the juridical nature of our Institute, there are two points to consider:—

(*a*) The circumstance that our Institute does not possess in itself the absolute guarantee of unlimited duration although we all have full and entire confidence in its permanency. It follows that we cannot to-day assume any liability which will imply a supposition of the permanent existence of the Institute. On the contrary we must admit the hypothesis that at any time the Institute may cease to exist, and that, in that event, we should find ourselves entirely free from any kind of liability. In practice this is important, as in choosing a system of remuneration and in fixing the nature of the engagement of our officers, we ought to reserve the power of dismissing them at any time, and pay them accordingly.

(*b*) The other point has reference to the international nature of the Institute which demands a composition of the staff equally international, as is provided by article 26 of our procedure. We must then reckon with the fact that we will have to engage officers coming from different countries and give them a comfortable existence in a foreign country, and although in this case it is the beautiful country of Italy, in which we admire so many sublime things, it is none the less for them a foreign residence, subject to some privations as well as exceptional expenses. Our officers then should find certain compensation in their remuneration.

(*c*) I have mentioned a third cardinal point to wit, the definition of the character of our Institute; if you were to ask me for a positive definition of our Institute, I would find it difficult to answer you.

Permit me then to tell you now that which is not in the nature of the Institute.

Has the Institute a diplomatic character? No, gentlemen; although we have the honour and the pleasure of counting among ourselves a great number of eminent diplomats and although in the General Assembly there will be perhaps diplomatic re-

presentatives of the governments who will lead their delegations, the true character of our Institute will not change. Certainly, gentlemen, the Institute in view of its international composition, will always be in touch with diplomacy, and I would even say that the Institute by its preparatory work, will render services to diplomacy, in dealing with international matters, but the Institute can never assume a diplomatic character, without risking the failure of realizing the objects which it has in view.

Has our Institute the character of an administrative governmental institution? No, gentlemen; neither would that suit the nature of our task. Certainly we should enter and remain intimately in touch with all governmental administrations. They will be, if I may use the expression, our nurses, from whom we will draw our financial means, as well as the material which we require for our work. Meanwhile our organization and our method of work differ entirely from governmental administrative systems. A bureaucratic routine would mean the death of our Institute.

Has our Institute a purely scientific character? No, gentlemen; it is not ours to seek the solution of scientific problems, but we will be able to serve science and to assist it by bringing to it very useful scientific material. We will be closely allied to science; I would even say our methods of work will resemble scientific methods more than any other, but our Institute will not, for all that, be a scientific Institute.

Has our Institute the character of a statistical bureau? Does it resemble a government statistical office? No, gentlemen; it will certainly have much affinity with such an office, but its character will be very different. Certainly, gentlemen, the statistical offices will be our principal co-workers, as on the other hand, our Institute by elaboration of material collected in all parts of the world will be able to materially aid statistical bureaux. But there will nevertheless exist a great difference. This difference arises, from the fact that our Institute is not called upon to deal with dead but with living statistics. I do not say that the existing statistical bureaux do not also deal with living statistics; they do, and it is precisely that part of their work by which our Institute will profit. But these living statistics are not the principal object of these bureaux. Their principal object consists, if I may say so, in the gathering and elaboration of data from a historical and retrospective point of view, which are doubtless of use in their application to existing conditions, but which are no longer existing at the time of their application. Our Institute, on the contrary, should work in such a manner as to furnish data from day to day, and consequently answer to existing and daily demands.

There, gentlemen, is a list of negations; one might reasonably ask, what then is the positive character of the Institute? In answering this question I would use a metaphor. I believe we might compare our Institute to an industry which sets out to create a principal product, but which in the course of manufacture, creates at the same time a number of secondary products. In the Institute the first matter would be the assembling of information coming to us from governments and from other sources throughout the entire world. The principal product which we desire to create is a certain and wide basis for the formation of real prices of agricultural products. The secondary products are more varied: they consist of the services which we can render to agricultural and commercial statistics in general, to science, to government administration and to diplomacy.

The Institute will then have the character of an industrial scientific establishment of such a sort that its organization, its methods of work, its staff and the qualifications of its employees will correspond with its special character.

I have had to extend my remarks somewhat to arrive at a very simple conclusion, namely, that we should have a staff having qualifications entirely special, of extensive culture and worthy of the greatest confidence. Needless to say, I speak specially of the directing officers, from whom we will require exceptional qualifications, but, inasmuch as on the one hand we are obliged to engage such officers, we wish on the

other hand, as I have already had occasion to explain, to reserve to ourselves every possible liberty of action.

It must be added that this reservation is the much more necessary because of the novelty of the enterprise and our lack of experience which must eventually confine us to the nomination of persons whom we will be able to dismiss at any time.

It follows that it will be only at a very high rate of remuneration that we will be able to find superior officers entirely suited to our needs.

These are, gentlemen, the points of view which have guided us in establishing the normal table of appointments for all the officers, particularly for those who will hold controlling positions and those to whom the international principle is particularly applicable.

For those employees to whom these considerations do not apply, we have been able to conform approximately to the scale of payment in force in Italy, bearing in mind at the same time, that we must also demand from this portion of the staff an effective service while reserving, even towards them, every liberty of action. This is why this class of employees is equally well remunerated.'

The remainder of Dr. Mueller's address which dealt in detail with the proposed salaries, has since lost some of its value because of changes in the figures made by the Permanent Committee after the meeting of the General Assembly.

All the discussion at this and the following meeting of the Permanent Committee was confined almost entirely to matters of detail.

The special reports presented by M. Louis Dop and Dr. Mueller to the General Assembly of which you were at the time the presiding officer, contain in all necessary amplitude the results of the labours of the Permanent Committee.

These labours, so far as I was concerned, came to a close on the evening of November 18, when the two gentlemen above named were appointed as official reporters to the General Assembly.

Hon. Arthur Boyer, who, at this time, succeeded me as Canadian delegate to the Permanent Committee has doubtless informed you fully regarding the work subsequently performed by that body.

I cannot close this report without again expressing my deep sense of obligation to Sir Thomas Elliott, the official delegate of Great Britain and Ireland. To his untiring efforts, marked at all times as they were, by consideration for others, suavity and sound common sense, the Institute, in my opinion, owes almost entirely the comparative success which it has so far achieved.

I am satisfied that without his influence the task of harmonizing the views of the delegates representing the greater European powers would have been almost, if not altogether, impossible.

He was well sustained by another very able and experienced man, Sir Edward Buck, an old Indian administrator, who was for many years Secretary to the Council of India, and who has given practically his whole life to the task of organizing the agriculture of that country.

Much credit is also due to Mr. T. P. Gill, Secretary of the Department of Agriculture and Technical Instruction in Ireland, who took a deep interest in the work of the Institute and contributed largely to the measure of success achieved.

Among the delegates from other countries were many able and even brilliant men, among whom may be especially mentioned Dr. Mueller, M. Louis Dop, M. Miklos de Miklosvar, and His Excellency Boghos Pacha Nubar, the representatives respectively of Germany, France, Hungary and Egypt.

As the first official delegate from Canada to the International Institute of Agriculture, I desire to place on record my opinion that if the destinies of that Institute are controlled, as they ought to be, by the business nations, it is certain to have a marked influence upon the future peace and prosperity of the world.

It therefore goes without saying that the commercial nations of the world, especially those which, like Canada, are large producers of agricultural staples, should take seriously to heart their share in its development, and should employ in connection with it, the best and brainiest men available for the work.

I have the honour to be, sir,

Your obedient servant,

J. G. RUTHERFORD,
Veterinary Director General and
Live Stock Commissioner.

To the Honourable,
The Minister of Agriculture,
Ottawa, Ont.

APPENDIX No. 18.

INTERNATIONAL INSTITUTE OF AGRICULTURE.

(The Honourable Arthur Boyer.)

PALACE OF THE INSTITUTE,
ROME, March 31, 1909.

SIR,—As Canadian delegate to the International Agricultural Institute at Rome, I beg to submit herewith the report of my mission for the fiscal year 1908-9.

Allow me to call your attention to the fact that the organization of the Institute was completed only in January-February last, by the nomination of its chiefs of division and of section, and that the preparation of a programme for an International Institute composed of forty-eight nations is no easy work, necessitating as it does a great deal of time, thought and patience. The fact of having the Institute organized is an accomplishment worthy of record, though there might be no other results to point at, and it is hoped that this organization will give us, the first year, all the results that can be expected.

The 28th of November, 1908, at ten o'clock in the morning, the doors of the splendid palace built by His Majesty the King of Italy, in the magnificent park of the historic Villa Borghese, were thrown open for the first meeting of the General Assembly of the International Agricultural Institute.

At the annual meeting of 1908, thirty-five of the forty nations which had given their adhesion to the Convention of June 7, 1905, were represented by seventy-one delegates, under the presidency of His Excellency the French Ambassador, Dean of the Diplomatic corps, in the absence of His Excellency M. Tittoni, the Italian Minister of Foreign Affairs.

The session being opened, the president proposes to proceed with the election of two vice-presidents under article IV of the Convention of June 7, 1905.

His Excellency, the Earl of Monts, German Ambassador and Chief of the German delegation, says that the vice-presidents should be selected among technical men, and as there are in the assembly a minister of agriculture and a secretary of state, meaning His Excellency M. Fisher, Minister of Agriculture for Canada, and His Excellency M. Yermoloff, Secretary of State for Russia, the position should be offered to them; he proposes therefore that the Hon. Mr. Fisher be appointed first vice-president and the Hon. M. Yermoloff, second vice-president. This motion, seconded by His Excellency M. Griscom, United States Ambassador, and chief of the American delegation, was unanimously adopted by the meeting, and the president proclaimed Their Excellencies M.M. Fisher and Yermoloff vice-presidents.

M.M. Fisher and Yermoloff gave thanks to the meeting in the names of their respective governments and in their own names. The choice of the secretary was then proceeded with, under article 8 of the Convention of 1905, and Mr. Koch, Minister Plenipotentiary for H.M. the King of Italy, was requested to fill the duties of secretary to the assembly and chief of the secretariate.

The president proposes that the assembly adopts for its administration the regulations of the 1905 conference with the necessary modifications, and the examination of the statutes of the Institute, prepared by the permanent committee, is then taken up.

Mr. Louis Dop, French delegate and reporter of the permanent committee, reads his report on the organization and the mode of operation of the Institute. This

report, which covers forty-five articles, deals with all points necessary for the administration and operation of the Institute. The first clause reads as follows: 'The discussions will be carried and the acts of the Institute will be drafted in the French language.'

The work of the Institute is assigned to three divisions, and each division is placed under a chief who is responsible to the permanent committee and to the president.

The first division deals with finances, correspondence, library, bibliography, archives, staff, palace of the Institute, and all questions relating to the work of the Institute.

The second division takes up agricultural statistics, research work, centralization and publication of information and statistics of crops and animal products, distribution and consumption of agricultural products; prices and stocks of agricultural products; general and special statements of prices of agricultural products; centralization and analysis of various periodical information on agricultural conditions in all countries; centralization of fiscal and customs statistics concerning agricultural products; importation, exportation, agricultural statistics, issued daily, weekly and monthly; general statistics; special, periodical and non-periodical statistics; statistical commissions in all countries, &c.

II. Agricultural information: markets, fairs, &c. Collection, compilation and publication of practical information on agriculture, animal and vegetal products, trade in agricultural products; interpretation and comparison of various statistics; inquiries and monographies.

III. Diseases of plants: Extent and severity of diseases; remedies. Noxious cryptogans; entomology.

The third division deals with salaries of rural labour; statistics and information concerning the organization of co-operation, insurance and agricultural credit.

Article 21 provides the gathering of the documents necessary to the work of the Institute. It reads as follows: 'The documents and information mentioned in the foregoing are provided directly by the governments, or under their responsibility, or with their help.' The president declares that in order to allow the meeting to judge this work in its entirety, M. Mueller, reporter, should read his report on the Budget at this stage of the proceedings.

The total receipts for the year 1909 are estimated at 849,500 francs, made up as follows: 406,594.65 francs, excess of receipts over expenses for the year 1908. This rather large surplus is due to the fact that the Institute was not organized during the last fiscal year and to the inclusion, in the receipts, of the sum of 441,905.35 francs made up of the contributions of the various countries for the year 1909, which gives a total of 849,500 francs. The expenses, estimated at 749,500 francs, are as follows:—

	Francs.
Staff	308,140
Keeping up and repairs, buildings, grounds, &c.	26,000
Office and correspondence	306,000
Library and printing	50,000
Sundries	39,360
Installation	20,000
Total	749,500

Leaving a surplus of 100,000 francs, which is set apart as a reserve fund.

The subvention due to the magnificence of H.M. the King of Italy, founder of the Institute, goes to defray the cost of building and furnishing of the palace of the Institute for the current year.

One word as to the states adhering to the institutes: These states are divided into five classes, and the number of votes, and the amount of contribution varies with each class.

The first class includes fourteen countries, each of which has five votes and pays 24,000 francs.

The second class includes five countries, each of which has four votes and pays 12,000 francs.

The third class includes two countries, each of which has three votes and pays 6,000 francs.

The fourth class includes eleven countries, each of which has two votes and pays 3,000 francs.

The fifth class includes ten countries, each of which has one vote and pays 1,500 francs.

This statement shows clearly the difference made between large, medium and small countries. This mode of assessment for contributions to be paid by the different countries is in my opinion very fair, and the amounts are proportionate to the influence which each country exercises in the Institute.

The meeting of November 29, 1908, under the presidency of His Excellency Mr. Tittoni, the Italian Minister of Foreign Affairs, was most interesting.

The magnificent speech of welcome which he gave, and particularly the words: 'It is with joy and pride that, in the name of His Majesty the King of Italy, I sanction your work in this Eternal City, the cradle of civilization,' were warmly cheered.

In his answer, His Excellency Mr. Fisher, first vice-president, requested His Excellency to convey the thanks of the meeting to His Majesty the King, to whom we owe the establishment, in the Eternal City, of this Institute, which has met such a hearty welcome in the universe. 'Through the centuries Rome has been the centre of great movements. To-day she sees within her walls a meeting of all nations working in harmony for the interests of agriculture, first necessity of life and foster-mother of the people, and I am convinced that I rightly interpret the feelings of these delegates of all countries by assuring through you His Majesty the King that our most heartfelt desire is to place on a permanent basis the great work which is the object of our efforts.'

After a short discussion it was decided to hold the next meeting of the general assembly in the month of November, 1909.

At the last meetings of November 30 and December, 1908, the regulations of the permanent committee were, after discussion, submitted to a sub-commission, to be slightly modified, after which they were unanimously adopted by the general assembly. His Excellency Mr. Fisher having declared the programme exhausted, the general assembly had completed its work.

Dr. J. G. Rutherford, Veterinary Director General for Canada, who heretofore had been the Canadian delegate to the permanent committee, and who had performed his duties with his usual ability, had to accompany you to London where his presence was required, and I received instructions from you to take his place.

It might be well to give here some explanations regarding the constitution and the work of the institute. The nations which so far have given their adhesion number forty-eight. The organization of the Institute is as follows: A permanent committtee of forty-eight members, which meets at least once a month and oftener if business requires. A special committee composed of five members: president, vice-president, and president of the first, second and third division. This special committee, which is called by the president, sits permanently. It prepares the work and deals with all questions in which the Institute is interested. However, its decisions and suggestions are subject to the approbation of the permanent committee.

As soon as the general assembly was adjourned, the permanent committee resumed its sessions, and the Hon. Senator Count Faina, Italian delegate, was elected president, and M. Louis Dop, French delegate, vice-president.

The number of members in each of the three divisions has been increased from fifteen to twenty-two, as provided by the Norrero motion, so that the nations of the third, fourth and fifth class might be better represented.

The first division (finances, &c.) elected as president, E. de Miklos, Hungarian delegate; M. A. Echeverria, Spanish delegate, was elected vice-president, and M. G. Zabiello, Russian delegate, reporter.

The second division (statistics, &c.) elected Dr. T. Mueller, German delegate, as president; M. J. B. Pioda, Swiss delegate, vice-president, and M. O. Bolle, Belgian delegate, reporter.

The third division (rural labour, co-operation, &c.) elected M. A. Boyer, Canadian delegate, as president; G. A. Esteva, Mexican delegate, vice-president, and the Chevalier Pozzi, Austrian delegate, reporter.

Allow me to call your attention to the fact that the Canadian delegate was selected to preside over the third division. Most of the presidents, for the Institute as well as for the various divisions, were recruited among the nations of the first class: presidency and vice-presidency of the Institute and presidency of the first and second divisions. If Canada was given the presidency of the third division, although she ranks only with the nations of the second class in the Institute, we owe it to Sir Thomas Elliott, delegate to the general assembly and permanent Secretary for Agriculture in England; and our thanks are due to him for the unanimous election of the Canadian delegate to a high post in the Institute.

Before dispersing for Christmas and New Year's vacations, the special committee requested the president to send all nations adhering to the Institute a circular letter requesting them to designate the men they believed the most competent to fill the high posts of technical chief and sub-chief of the three bureaux among which the work of the Institute is divided, for the Institute being international, article 46 of the regulations says 'that the composition of the staff of the Institute must be international.' This article caused us to spend many ugly hours, and many a time it came near breaking the harmony which had heretofore reigned in the discussions and decisions of the permanent and special committees.

The special committee met again on January 22, and spent several days in considering applications for the position of general secretary, which were eight in number. Out of deference to the president, the committee favoured the nomination of Chevalier E. Koch, of Italy, Minister Plenipotentiary of His Majesty the King of Italy, and who had filled this position since the foundation of the Institute, having been detached from the Ministry of Foreign Affairs for that purpose. This choice of the special committee was ratified by the permanent committee, as also the choice of the following persons for the posts of chiefs of divisions and of sections: —

Dr. Charles C. Clark, from the United States of America, Chief of the United States Bureau of Agricultural Statistics, who resigned this position for that of the chief of the second division.

M. François Braffort, from Belgium, Director of Agriculture in Belgium, position which he resigned to accept that of chief of the third division.

Le Baron de Podmaniczky, from Hungary, librarian.

M. Guillaume T. Prayer, from Germany, chief of section of the second division.

M. Jules Saulnier, from France, chief of section of the second division (diseases of plants).

Professor Giglioli, from Italy, chief of section of the second division (agricultural information).

M. Wieth Knudson, from Denmark, chief of section of the third division (salaries of rural labour).

M. Gaetano Donini, from Switzerland, chief of section of the third division (co-operation, insurance and agricultural credit).

M. Ulrico Aillaud, from Italy, assistant to secretary.

This choice of distinguished technical men, of universal repute, and who, although occupying high positions in their respective countries, did not hesitate to put their talents at the service of the Institute, is of good omen.

The appointment of editors, translators, &c., completed the staff of the Institute and enabled it to commence its work.

The organization of the library is of the highest importance for the Institute. Lord Crewe, English Secretary of State for the Colonies, addressed to the various governments of the colonies adhering to the Institute a circular letter calling their attention to the fact that, by the Convention of 1905, they had pledged themselves to supply all publications relating to the various lines of work of the Institute.

Thanks to the zeal of Mr. Keville Doherty, who had received your instructions to collect in the various departments at Ottawa and to send all publications that might be useful to the work of the Institute, I was able to answer that, two months previous to the receipt of this circular the Canadian government had commenced sending its publications, and I may add that the Canadian shelf is by far the most complete in the library. A large number of its publications are greatly admired, and a good share of the praise is bestowed on the *Labour Gazette*.

Allow me, in concluding, to say one more word regarding the object of the Institute, which Dr. Mueller, in his report to the permanent committee, defines as follows:

'It is stated in my report that we have to deal with a new institute, almost unknown until now, for which we must recruit a staff possessing superior and special ability—men who are very scarce, and among whom there is very little choice. This difficulty is due to the rather complicated character of the Institute. Considering the object and the method of work of the Institute, one could more easily define what is not in the nature of the Institute than what is in its nature. Here is a great complication: It is somewhat of a diplomatic Institute, owing to its internal composition and its quality of state institution; it partakes a little more of a bureau of statistics in the sense of an office of government statistics, but it is not such, for it will not gather statistics directly, it will rather avail itself of the information supplied by governmental offices, by compiling and elaborating this information for its own object.

'And, gentlemen, along with industrial work, we desire to accomplish an agricultural object, implied in the name of our Institute. We will endeavour to render important services to agriculture by gathering, compiling and elaborating data of a purely agricultural nature. I consider that the chief object of our work will be the establishment of a universal basis for the prices of agricultural products. Furthermore, all other lines of work of the Institute, foreseen in the programme of the Convention of 1905, concerning rural labour, co-operation, social economic institutions, diseases of plants, &c., aim equally to render practical and useful services to agriculture.'

'Reverting once more to our principal line of work, our aim is to give agriculture a weapon with which it will be in a position to defend itself against the abuses of speculation on the markets of agricultural produce.'

And I may add that the work undertaken is of such magnitude that at times it seems doubtful if man can accomplish it. It must be remembered that forty-eight nations send their publications and their statistics to the Institute, but these publications are in their own languages—Japanese, Chinese, Russian, Hungarian, German, French, English, Spanish, Portuguese, Turkish, Egyptian, Greek, Norwegian, Dutch, Persian, Ethiopian, and all this has to be translated into French. The majority have their own weights and measures, which have to be reduced to the metric system, and all have their currency that must equally be brought to a common standard. There are more than one hundred countries which do not as yet form part of the Institute,

and it is absolutely necessary to secure their publications and statistics, otherwise the title 'World Statistics' would be incomplete and would have little value. To indicate the salaries of the rural labour for the whole world is no ordinary task. Let us hope that work, perseverance and talent will bring to a happy conclusion the glorious and magnanimous foundation of His Majesty Victor Emmanuel III: The International Agricultural Institute.

The whole respectfully submitted.

ARTHUR BOYER,
Delegate of Canada.

To the Honourable
The Minister of Agriculture.
Ottawa.

APPENDIX No. 19.

STATUTES OF THE INTERNATIONAL AGRICULTURAL INSTITUTE.

CONVENTION OF JUNE 7, 1905.

At a series of meetings held at Rome from May 29 to June 6, 1905, the delegates of the Powers which attended the conference for the creation of an International Institute of Agriculture having drawn up the text of a convention bearing the date June 7, 1905, and that text having been submitted for their approbation to the governments which took part in the said conference, the undersigned, having full powers, formed in good and due form, have, in the name of their respective governments, agreed upon the following:—

Article 1

An International Permanent Agricultural Institute is established, with its seat at Rome.

Article 2

The International Agricultural Institute is to be an official institution, in which each country adhering shall be represented by delegates of its own selection.

The Institute shall consist of a General Assembly and of a Permanent Committee, of which the constitution and functions are defined in the following Articles.

Article 3

The General Assembly of the Institute shall be composed of representatives of the countries adhering. Each State, whatever may be the number of its delegates, shall be entitled in the Assembly to a number of votes which shall be determined according to the group to which it belongs, as indicated in Article 10.

Article 4

The General Assembly elects from its body for each session a president and two vice-presidents.

The sessions shall take place at certain dates fixed by the previous General Assembly, according to a programme submitted by the Permanent Committee and adopted by the adhering governments.

Article 5

The General Assembly has supreme control over the International Agricultural Institute.

It adopts schemes prepared by the Permanent Committee regarding the organization and internal functions of the Institute. It fixes the total expenditure; it controls and passes the accounts.

It submits to the adhering governments for their approval modifications of any nature which entail an increase of expenditure or an extension of the powers of the Institute. It fixes the date of the sittings. It draws up its own rules of procedure.

Delegates representing two-thirds of the votes of the adhering States must be present at the meetings of the General Assembly in order to give validity to the proceedings.

Article 6

The executive powers of the Institute are entrusted to the Permanent Committee, which under the direction and control of the General Assembly, carries out its resolutions and drafts the motions to be submitted to it.

Article 7

The Permanent Committee is composed of members nominated by the respective governments. Each adhering State shall be represented on the Permanent Committee by one member. Nevertheless the representation of one State can be confided to the delegate of another adhering State, provided that the effective number of the members is not less than fifteen.

The conditions for voting in Permanent Committee are similar to those indicated in Article 3 for the General Assembly.

Article 8

The Permanent Committee elects from its own members for a period of three years a President and a Vice-President, who are eligible for re-election. It makes its own rules of procedure; it votes the budget of the Institute within the limits of the sums placed at its disposal by the General Assembly; it appoints and discharges its staff officials and employees.

The General Secretary of the Permanent Committee fulfils the duties of Secretary of the Assembly.

Article 9

The Institute, limiting its action to international questions, shall—

(*a*) Collect, elaborate, and publish, with as little delay as possible, statistical, technical, or economic information regarding the cultivation of the soil, its production, whether animal or vegetable, the trade in agricultural products, and the prices obtained on the various markets;

(*b*) Send to interested parties, in a similarly rapid manner, full information of the nature above mentioned;

(*c*) Indicate the wages of rural labour;

(*d*) Notify the new diseases of plants which may appear in any part of the world, indicating the districts affected, the spread of the disease, and, if possible, the efficacious means of resistance;

(*e*) Consider questions relating to agricultural co-operation, insurance and credit, in all their forms, collecting and publishing information which may be useful in the various countries for the organization of undertakings relating to agricultural co-operation, insurance and credit;

(*f*) Present, if expedient, to the Governments, for their approval, measures for the protection of the interests common to agriculturists and for the improvement of their conditions, after having previously, taken every means of obtaining the necessary information, *e.g.*, resolutions passed by International Congresses or other congresses relating to agriculture or sciences applied to agriculture, Agricultural Societies, Academies, Learned Societies, &c.

All questions relating to the economic interests, the legislation and administration of any particular State, must be excluded from the sphere of the Institute.

Article 10

The States adhering to the Institute shall be classified into five groups, according to the place which each State considers best to select.

The number of votes at the disposal of each State, and the number of units of subscription, shall be fixed according to the two following scales:—

Groups of States.	No. of Votes.	Units of Subscription.
I..	5	16
II..	4	8
III..	3	4
IV..	2	2
V..	1	1

The minutes of the meetings give concise reports of the proceedings. They record all the propositions made during the course of debate, the results of the voting, and a short summary of the arguments submitted.

Every member has the right to demand the insertion of his speech *in extenso;* but, in that case, he must supply the text in writing to the Secretariat.

In any case the contribution corresponding to each unit of subscription can never exceed the sum of 2,500 francs.

As a temporary measure, the subscription for the first two years shall not exceed the sum of 1,500 francs for each unit.

On the application of the State to which they belong, colonies may be admitted to form part of the Institute on the same conditions as independent countries.

Article 11

The present Convention shall be ratified, and the ratification exchanged as quickly as possible through the agency of the Italian Government.

In witness whereof the respective plenipotentiaries have signed the present Convention and have affixed their seals thereto.

Done at Rome on the seventh day of June, one thousand nine hundred and five, in a single copy, deposited at the Italian Ministry of Foreign Affairs, and duly certified copies of which shall be sent, through the diplomatic channel to the contracting Powers.

For Great Britain and Ireland—Edwin H. Egerton.
For Italy—Tittoni.
For Montenegro—General Mitar Martinovich.
For Russia—Kroupensky.
For the Argentine Republic—Bald. M. Fonseca.
For Roumania—Nicolas Fléva.
For Servia—M. Milovanovitch.
For Belgium—L. Verhaeghe de Naeyer.
For Salvador—J. Gustavo Guerrero.
For Portugal—M. de Carvalho e Vasconcellos.
For the United States of Mexico—G. A. Esteva.
For Luxembourg—L. Verhaeghe de Naeyer.
For the Swiss Confederation—J. B. Pioda.
For Persia—M. Malcolm.
For Japan—T. Ohyama.
For Ecuador—J. T. Mera.
For Bulgaria—D. Mintchovitch.
For Denmark—Cte. Moltke.
For Spain—Duc de Arcos.
For France—Camille Barrère.
For Sweden—Bildt.
For the Netherlands—Jonkheer Van Der Goes.
For Greece—Christ. Mizzopoulos.
For Uruguay—Jean Cuestas.
For Germany—A. Monts.
For Cuba—Carlos de Pedroso.

For Austria and Hungary—H. Lützow, Ambassador for Austria-Hungary.
For Norway—Carl Lövenskiold.
For Egypt—Aziz Izzit.
For Guatamala—Thomas Segarini.
For Ethiopia—Giuseppe Cuboni.
For Nicaragua—Jean Giordano, Duc de Oratino.
For the United States—Henry White.
For Brazil—Barros Moreira.
For Costa Rica—Rafael Montealegre.
For Chili.—Victor Grez.
For Peru—Andrés A. Caceres.
For China—Houang Kao.
For Paraguay—F. S. Benucci.
For Turkey—M. Réchid.

APPENDIX No. 20.

REGULATIONS OF THE INSTITUTE.

Part I.—The General Assembly.

Article 1.—The French language is adopted for purposes of debate and for the proceedings of the Assembly.

Article 2.—The debates will be conducted according to parliamentary procedure.

Article 3.—The General Assembly may appoint sub-committees (commissions) Each sub-committee may be subdivided.

Article 4.—The General Assembly does not consider itself competent to discuss subjects which are not mentioned in the Agenda. In case of doubt, the Assembly decides whether any particular proposition, made at sittings of the sub-committee should be included or not, in the subjects indicated in the order of business.

Article 5.—The principal delegates shall select the members of their respective missions to serve on sub-committees. These members may, moreover, serve on two or more sub-committees.

Article 6.—Each State shall have only one vote in each sub-committee.

Article 7.—The sub-committee shall elect their own officers, and arrange the order of their proceedings. Each sub-committee shall nominate a reporter.

Article 8.—The reports of the sub-committees shall be printed before they are presented for discussion; and similarly, as a rule, with regard to every individual proposition submitted during the course of debate and taken into consideration by the General Assembly.

Article 9.—Every proposition must, as a rule, be submitted in writing to the president.

Article 10.—Votes are recorded by calling the names of the States in alphabetical order (appel nominal). The voting power of each delegation corresponds to the group to which belongs the State which it represents.

Article 11.—The minutes of the meetings give concise reports of the proceedings. They record all the propositions made during the course of debate, the results of the voting, and a short summary of the arguments submitted.

Every member has the right to demand the insertion of his speech in extenso; but, in that case, he must supply the text in writing to the secretariat immediately after the meeting.

Article 12.—The secrecy of the debates at the sittings of the Assembly shall be strictly observed. Without, however, detracting from this rule, and in consideration, as far as possible, of the legitimate public interest, the secretariat is authorized to organize a system of press reports, under the ultimate supervision of the president.

Article 13.—Three months at least before the opening of each session, the draft plan prepared by the permanent committee shall be submitted for the approval of each of the adhering governments, in accordance with Article 4 of the convention of the

7th June, 1905; and convening notices indicating the day and the hour of the opening of the session shall be sent to each of the delegates to the General Assembly when they have been appointed by their governments.

PART II.—ADMINISTRATION.

ARTICLE 14.—The French language is adopted for the proceedings of the institute.

ARTICLE 15.—The president of the permanent committee, or, in his absence, the vice-president, represents the institute, fulfils all the functions and accomplishes all the duties which emanate from the civil status of the institute. He signs the warrants for expenses and all official documents. He directs and superintends all the business of the institute and of its administrative and technical departments.

ARTICLE 16.—The general administration of the International Agricultural Institute includes three general divisions, viz.:—

(1) Division of the secretariat;

(2) Division of statistics, agricultural intelligence and diseases of plants;

(3) Division of economic and social institutions.

ARTICLE 17.—The secretary's department has charge of the following subjects:—

I. (*a*) *Registration.*—Opening, registering and distributing letters and despatches; personal correspondence; postponed business; receipt and distribution of statistical and bibliographical information; the post, telegraph and telephone services; press notices, &c.

(*b*) *Establishment.*—Maintenance and repairs of building; of the furniture; heating and lighting; superintendence of the messenger service; office supplies; sales and purchases; payment of the institute expenses; inventory of the furniture; the record of tradesmen's bills for goods supplied.

II. *Staff.*—Personnel of the institute; messengers; appointments, promotions, transfers, temporary staff, leave of absence, retirement allowances, and disciplinary measures; creation and abolition of posts; gratuities; regulations for remuneration on retirement; payments and allowances in general; relations between the institute and the public.

III. *Accountant's Department; Cashier.*—(*a*) Accounts; preparation of the budget; accounts and finance in general; control of authorized expenditure; control of the employment of funds; preparation and despatch of orders for payment; day-book; ledger; monthly statements of accounts; accounts of stock.

(*b*) *Cashier.*—Payments of salaries, wages, gratuities and current expenditure; receipts.

IV. *Library and Bibliography.*—Archives; receipt, classification and preservation of the files sent to the record room; classification and preparation of the library catalogues; purchase and exchange of books, reviews, newspapers and agricultural and other publications; subscriptions, general and special publications of the institute, exchanges, &c.; preparation of the general bibliographical index.

ARTICLE 18.—The following duties are allocated to the second division:—

I. *Agricultural Statistics.*—Inquiry, collection and publication of agricultural information and statistics relating to animal and vegetable culture and production, distribution and consumption of agricultural products; market prices and stocks of agricultural produce; general and special fluctuations in agricultural produce; collection and abstraction of periodical information on the agricultural situation in every country.

Collection of finance and customs statistics relating to agricultural produce; imports, exports; daily, weekly and monthly agricultural statistics; general statistics; special periodical or occasional statistics. Statistical departments of each country.

II. *Agricultural Intelligence.*—Markets, sales, fairs, &c.; inquiries, collection and publication of practical information relating to animal and vegetable culture and production, and the trade in agricultural products; interpretation and comparison of various statistical data; inquiries and monographs regarding vegetable and animal produce.

III. *Diseases of Plants.*—Distribution and prevalence of diseases; remedies; destructive pests; entomology.

ARTICLE 19.—The third division deals with the following duties:—

Wages of agricultural labour; statistics and information concerning the organization of agricultural co-operation, insurance and credit.

ARTICLE 20.—The documents and information indicated in Articles 18 and 19 are supplied directly by the governments, or on their responsibility and through their instrumentality.

ARTICLE 21.—The allocation of the staff and employees, their salaries, as well as their rights to retirement allowance, will be fixed in accordance with the regulations adopted by the permanent committee.

PART III.—THE PERMANENT COMMITTEE.

I. CONSTITUTION OF THE PERMANENT COMMITTEE; MEETINGS.

ARTICLE 22.—The French language is adopted for purposes of debate and for the proceedings of the permanent committee.

The chairman may, however, exceptionally and with the consent of the committee, authorize for purposes of debate the use of any other language by any delegate who does not speak French. He may also agree to its employment in special cases on condition that the speeches in question be invariably and immediately translated into French by one of the official translators of the institute or, should none be available, by another translator authorized for this purpose by the chairman.

The translator's version alone shall be accepted for the minutes.

The Chairman.

ARTICLE 23.—The chairman summons the members of the permanent committee in accordance with the procedure indicated in the special article relating to convening notices.

He maintains order at the sittings, he regulates the debates and announces the result of the divisions. When the votes on either side are equal the chairman has the casting vote.

He calls a member to order with or without insertion of the fact in the minutes.

The chairman of the permanent committee may attend the meetings of the various sub-committees, and he may take part in the proceedings.

Nevertheless, the chairman elected by each sub-committee presides at its meetings.

On receipt of notice from the chairman of the permanent committee, the chairman of each sub-committee is bound to summon its members within a week.

The chairman decides, ultimately, all questions of discipline concerning the staff of the institute which are not included in the provisions of Article 55.

The Vice Chairman.

ARTICLE 24.—The vice-chairman replaces the chairman in case of absence or of inability to attend, not only as regards the procedure at the meetings of the committee, but also as regards all his duties, powers, rights and prerogatives.

General Secretary.

ARTICLE 25.—The general secretary performs the duties of secretary to the permanent committee. He drafts the minutes and reads them at each sitting.

He enters, in the order of their request, the names of the members of the permanent committee who desire to take part in the proceedings.

At the chairman's request he reads the motions, amendments, and any other document to be communicated to the committee.

He records the resolutions of the committee and announces the result of the voting.

He calls the roll when the voting takes place by *appel nominal.*

He supplies to the members of the permanent committee and of the sub-committees documents relating to subjects to be brought forward for discussion.

He supplies details regarding questions under discussion, if requested to do so by the chairman.

Convening Notices.

ARTICLE 26.—The chairman is bound to convene the permanent committee regularly, at least once a month, during the first week of the month or at such date as may be fixed by the committee.

The chairman is bound to convene the committee on the special request of at least five members of the committee representing a minimum of 15 votes.

The chairman may, exceptionally, summon the committee in case of necessity or urgency.

The chairman must indicate on the convening notice the list of subjects to be submitted to the committee.

Except in the case of urgency, the convening notice must reach the members of the committee one week before the date of the meeting.

Agenda.

ARTICLE 27.—The chairman settles the Agenda.

Members of the committee send to the general secretary, two days before the date of the meeting, the text of the motions which they desire to have inserted in the Agenda.

Subjects not indicated on the Agenda can be brought forward as special motions during the sitting provided that they are submitted to the chairman with the signatures of five members of the committee, representing a minimum of 15 votes.

The motions are submitted for discussion as entered in the Agenda. The committee may, however, give priority to any particular motion.

Minutes.

ARTICLE 28.—The minutes give a short epitome of the debates. They contain all the motions proposed during the debates, as well as the result of the voting. They give an abstract of the discussion.

Each member of the committee has the right to demand the insertion of his speech *in extenso,* but then he is bound to supply the text to the general secretary immediately after the sitting.

The general secretary is authorized to organize, under the supervision of the chairman, an official service of press notices.

ARTICLE 29.—Every communication submitted by a delegate for insertion in the minutes must first be supplied in the French language to the chairman who, after satisfying himself that the communication is in order, consults the permanent committee at the next sitting as regards its insertion, as a whole or in part, or with alterations.

Sittings.

ARTICLE 30.—I. The chairman opens the sittings.

When the minutes have been read and confirmed, he opens the discussion on the first subject mentioned in the Agenda.

He calls on each speaker according to the order of the names as entered.

If necessary, and before any discussion takes place, he asks the reporters to make any statement regarding subjects on the Agenda. Reporters are exempt from the regulations regarding the inscription of their names, and they have a right to speak when they claim it.

When several motions are entered in the Agenda, the chairman consults the sub-committee in order to decide whether or not it is desired to discuss the subjects.

A member of the committee may claim to speak at any time on a point of order, or on a personal question.

Any motion by a member of the permanent committee may give rise to the nomination of a special reporter to be appointed by the committee.

The speaker must confine his remarks to the subject under discussion. If he departs therefrom, the chairman calls him to order.

There can be no debate on a call to order.

The 'previous question,' that is to say, the declaration that there is no ground for debate can always be put.

Any additional motion and amendment can be submitted before or during the debate. It must be submitted in writing.

The chairman announces the additional motion or amendments and submits them for discussion in accordance with the procedure for the principal motion.

As regards financial questions, every motion submitted by a member of the committee shall, before discussion, and as contemplated in Article 32, be referred to the first sub-committee, which shall report on the subject and propose the course of action to be adopted by the permanent committee.

II. The chairman closes the discussion when all the speakers whose names are noted have been heard.

During the discussion, the closure may be moved at the request of, at least, five members of the committee representing a minimum of 15 votes.

There can be no debate on a demand to move the closure. It is carried by a majority of two-thirds of the members present at the meeting.

Votes.

ARTICLE 31.—The vote is decided by an absolute majority of the votes of the states. It is taken by roll-call (*appel nominal*) in the alphabetical order of the names of the states, whenever a member of the committee makes the demand.

The chairman may consult the committee whether the vote may be taken by a show of hands.

Voting by ballot is compulsory on the demand of at least five delegates, representing a minimum of 15 votes.

This method is obligatory whenever the motion deals with personal questions.

II. SUB-COMMITTEES.

ARTICLE 32.—The permanent committee selects from its own members three standing sub-committee (*commissions*).

I. The first sub-committee deals with secretadial business, *i.e.*, the staff, establishment, finance, accounts, library, bibliography, receipt and distribution of statistical and bibliographical information.

II. The second sub-committee deals with all matters indicated in paragraphs (*a*), (*b*) and (*d*) of Article 9 of the *Acte final*, viz.:—

(*a*) The collection, elaboration and publication, with as little delay as possible, of statistical, technical, or economic information regarding the cultivation of the soil, its production, whether animal or vegetable, the trade in agricultural products, and the prices obtained on the various markets.

(*b*) The supply to interested parties, in a similarly rapid manner, of full information of the nature above mentioned.

(*d*) The notification of the new diseases of plants which may appear in any part of the world, indicating the districts affected, the spread of the disease, and, if possible, the efficacious means of resistance.

III. The third sub-committee deals with all questions indicated in paragraphs (*c*) and (*e*) of Article 9 of the *Acte final*, viz.:—

(*c*) The indication of the wages of rural labour.

(*e*) The consideration of questions relating to agricultural co-operation, insurance, and credit, in all their forms, collecting and publishing information which may be useful in the various countries for the organization of undertakings relating to agricultural co-operation, insurance and credit.

As regards paragraph (*f*) of Article 9 of the *Acte final* of 1905*, it is agreed that the subjects indicated therein belong exclusively to the competence of the permanent committee.

Members of these permanent sub-committees who belong to the same group of states may interchange at the beginning of each year.

A member of one of the sub-committees may, with the previous approval of the special committee, also be replaced by a member of the permanent committee, provided he belongs to his own group and does not form part of the permanent sub-committees.

The committee may, whenever it seems desirable to do so, appoint special committees independently of the permanent sub-committees.

Every member of the committee is entitled to attend the meetings of sub-committees to which he does not belong, but without the right to speak or to vote.

Each sub-committee may be subdivided.

The right to vote.—In each sub-committee, members of the permanent committee have only one vote for each state; nevertheless, the presence of five delegates, separately representing five different states and holding at least 15 votes, is required in order to validate the proceedings.

Appointment of the Sub-committees and of the Special Committee.

ARTICLE 33.—Nominations to the permanent or special sub-committee are made by a special committee composed of five members, viz.:—the chairman of the permanent committee; the vice-chairman; and the chairman of the three sub-committees referred to in Article 32.

At the outset, the three members of this committee are selected by the chairman from each of the categories indicated below, and their duties will cease when the members of the three sub-committees have been appointed.

In selecting the members of the sub-committees, the special committee will take into account the nature of the duties entrusted to them, the composition of the committee itself, and the special qualifications of its members, and the wishes they have expressed.

Constitution.—For purposes of constituting the permanent sub-committees the states are divided into three classes†:—

The first category includes the countries placed in group I., mentioned in Article 10 of the *Acte final*. It is entitled to eight members on each permanent sub-committee

The second category includes the states belonging to groups II. and III. indicated in Article 10 of the *Acte final.* It is entitled to three members on each permanent sub-committee.

The third category includes the states shown in groups IV. and V. of Article 10 of the *Acte final.* It is entitled to four members on each permanent sub-committee.

The special committee may replace a member of a permanent sub-committee in case of prolonged absence.

The committee may also add one or more members temporarily to any permanent sub-committee in order to facilitate inquiry into any special technical subject which it is investigating.

The convening of the meetings of the three permanent sub-committees must be made in consultation with the special committee.

ARTICLE 33.—The three permanent sub-committees, duly constituted, form the consists of a chairman, vice-chairman and reporter.

They regulate the order of their proceedings.

The reports of the permanent sub-committee are printed before being submitted to the permanent committee for discussion.

The membership of each permanent sub-committee, its executive, and its functions are limited to a period of three years.

Nominations to each of the permanent sub-committees are made every three years by the special committee at its opening sitting.

ARTICLE 35.—The three permanent sub-committees, duly constituted, from the consultative body.

Each sub-committee is charged with the duty of investigating, and of expressing an opinion on, subjects within its own sphere, as indicated in the several paragraphs of Article 32.

Each sub-committee is entitled to initiate proposals in reference to subjects within its scope.

Each sub-committee may also take cognizance of questions which are referred to it by the permanent committee.

ARTICLE 36.—The chairman of the permanent committee once a year convenes the members of the special committee and the council of heads of divisions in order to issue instructions of an administrative, a financial or scientific nature for submission to the sub-committees and to the permanent committee.

Each proposal forms the subject of a special report.

Technical Experts.

ARTICLE 37.—The permanent committee and sub-committees may, at the request of one of their members and on his responsibility, invite the attendance and assistance of technical experts who are able to supply information on special or technical subjects which the permanent committee or the sub-committees will have to investigate.

The attendance of these technical experts at sittings of the permanent committee, or of a sub-committee, will cease as soon as they have supplied the information required.

Alteration of Rules.

ARTICLE 38.—Any alteration or revision of the present regulations can only be considered on the written demand of at least ten delegates, representing a minimum of 30 votes.

The demand can only be submitted to the committee on the expiration of three months from the date when a special notification of such alterations or revisions has been sent to the delegates of each state.

Part IV.—The Staff.

Article 39.—The division and assignment of duties, the allocation of the staff and employees, as well as their salaries, are fixed as indicated in these regulations. Independently of salary, the staff and employees are entitled to compensation on retirement on the conditions indicated later.

The distribution of the staff is made by the special committee in consultation with the general secretary and the heads of branches.

Article 40.—The staff of the institute consists of:—

One general secretary, two heads of divisions, one librarian, heads of branches, assistants to general secretary, editors, translators (1st and 2nd class), clerks (1st and 2nd class), shorthand typists.

Article 41.—The salaries are fixed as follows:—

	Francs.	Francs.
General secretary	22,000	
Heads of divisions	20,000	
Librarian	10,000 to	14,000
Heads of branches	10,000 "	15,000
Assistants to the general secretary	6,000 "	9,000
Editors, translators (1st class)	5,000 "	8,000
Editors, translators (2nd class)	4,000 "	7,200
1st class clerks	3,000 "	5,400
2nd class clerks	2,400 "	4,320
Shorthand typists	1,800 "	3,240

The librarian, heads of branches, assistants to the general secretary, editors, translators, clerks and shorthand typists may obtain, after each period of four years' service, an increase corresponding to one-tenth of the minimum salary of their grade.

Apart from the salaries fixed by this article the permanent committee may grant a personal salary to the general secretary and to the heads of divisions, in course of time and in particular cases which the committee alone decide.

Article 42.—Beyond the scale fixed above and within the limits of the budget, technical assistants may, provisionally and for special work, be attached to the staff of the institute. These officials have no connection with the regular administrative staff.

Adhering states may, at the request and on the responsibility of their delegate and with the approval of the permanent committee, authorize the temporary attendance at the institute without any liability on its part, of persons who wish to study its organization and functions.

Article 43.—The subordinate staff consists of:—Ushers, housekeeper, office-keepers, messengers.

Article 44.—The wages are fixed on the following scale:—

	Francs.	Francs.
Ushers and housekeeper	2,000 to	2,800
Office-keepers	1,800 "	2,520
Messengers	1,400 "	1,960

An increase of salary corresponding to one-tenth of the minimum salary of their grade may be allowed after each period of four years' service.

Article 45.—Salaries, gratuities and remunerations of all kinds allowed to the officials must be charged to the vote for salaries relating to the staff of the institute.

Such remuneration must always be subject to the formal decision of the special committee and the approval of the permanent committee.

ARTICLE 46.—The composition of the staff of the institute is international.

ARTICLE 47.—The general secretary, the heads of divisions, the librarian, the assistant to general secretary, the heads of branches, the editors, translators, clerks and shorthand typists are appointed and liberated by the permanent committee on the advice of the special committee mentioned in article 33.

The subordinate staff is appointed by the chairman, on the nomination of the general secretary, within the limits provided by the budget.

ARTICLE 48.—A council consisting of the general secretary and the heads of divisions is established under the presidency of the chairman.

The council considers questions allotted to it by article 57 of the present regulations.

ARTICLE 49.—The staff of the institute is appointed by nomination, without examination, after inquiry by the permanent committee as regards the scientific or administrative qualifications and abilities of the candidates for the various posts.

The entrance limit of age for editors, translators, clerks, and shorthand typists is 30 years.

No candidate may be recommended to the special committee without the previous approval of the delegate of the country to which the candidate belongs.

ARTICLE 50.—The names of candidates are submitted to the special committee and to the permanent committee in the order of their entry on a list kept by the general secretary.

Candidates will be noted on the list when they have given proof of a general knowledge of the French language. An exception on this point is made in certain cases, which the permanent committee alone will decide.

ARTICLE 51.—Editors, translators, clerks and shorthand typists are not definitely appointed until after a probation of six months.

At the end of that period, the general secretary, after consultation with the heads of departments to which the probationers have been attached, presents a report on their qualifications and suitability to the special committee who, if advisable, proposes to the permanent committee that they be permanently appointed.

If the report of the general secretary is not favourable the probationers are immediately discharged.

ARTICLE 52.—Transfers among the officials and employees are authorized in exceptional cases. These changes may not give rise to any modification in the pecuniary position of the officials concerned.

ARTICLE 53.—Every official and employee is bound to devote himself exclusively to the performance of his duties.

It is forbidden, under pain of dismissal, to combine regular external employment with any post at the institute.

Conditions of Promotion.

ARTICLE 54.—Every official on appointment or on promotion commences at the minimum salary of the grade.

Nevertheless, the new salary can never be less than that which the official received before his promotion.

Promotion takes place from one class to the class immediately above as indicated by salary.

No person can be promoted to a higher class until after four years service in the lower grade to which he belongs.

In exceptional cases, which the permanent committee alone will decide, the conditions mentioned in the first and fourth paragraphs of this article may however be departed from.

Discipline.

ARTICLE 55.—The disciplinary measures applicable to the personnel are as follows:

1. Reprimand.
2. Censure, with a recorded entry, which may involve disqualification from promotion for one year.
3. Temporary suspension.
4. Simple dismissal.
5. Dismissal, involving the loss of claim to compensation.

Reprimand and censure are pronounced by the president of the institute on the report of the general secretary, after consultation with the head of the division under whose orders the officer or employee was serving.

Suspension and dismissal are pronounced by the permanent committee at the suggestion of the special committee referred to in Article 33.

ARTICLE 56.—The disciplinary measures (Article 55) applicable to the general secretary and to the heads of divisions are taken by the permanent committee on the advice of the special committee.

ARTICLE 57.—The special committee, on the report of the head of the branch under whom the official or the employee is serving, decides whether the officer or employee shall be sent before the council of heads of branches, and he appoints a reporter from among the members of this council.

The reporter presents to the official concerned a statement of the complaint, he receives his explanations and any document handed in for his defence. The officer or employee indicates the person whom he wishes to be heard regarding the complaint against him.

The council, convened by the president, receives the report and hears the persons called officially by the president or by desire of the person concerned as well as the official himself.

The council then considers the matter and votes by ballot. If the votes are equally divided, the decision which is the more favourable to the person concerned is adopted.

ARTICLE 58.—Every official is expressly forbidden, under pain of the most serious disciplinary measures, to make any public communication respecting official information which comes to his knowledge as a member of the staff of the institute.

Holidays.

ARTICLE 59.—In addition to public holidays, when the staff may possibly be required to attend, the regular leave is as follows:—

Sixty days annually for the general secretary, the heads of divisions, the librarian, the heads of branches and the assistants to the general secretary.

Thirty days annually for the clerks and shorthand typist.

Thirty days annually for the editors and translators.

Officers may take leave in one period, or partially, at any season of the year.

Nevertheless, officials may not go on leave until they have made arrangements regarding their work and received the sanction of the president and of the general secretary.

ARTICLE 60.—Absence through illness, when duly reported and verified in accordance with the following article, will not be included in the number of days of regular leave.

Any absence through illness must at once be notified by the officer concerned to the head of the branch and to the general secretary.

If the illness lasts more than two days, the officer is bound to supply a medical certificate.

It is the duty of the general secretary to verify the report as to the officer's health, and to obtain confirmation as often as he thinks necessary.

ARTICLE 61.—Absence for any other reason than that of illness must be immediately notified to the head of the branch and to the general secretary, with particulars as to the cause of absence.

The president and the general secretary decide as to the reasons which may justify such absence.

ARTICLE 62.—In the case of illness, an official receives full pay during the first six months. After that period, he may be kept on half pay, but only for a further period of four months.

In the case of leave for special reasons, an officer receives full pay during a period of two months.

After that time, the officer may be absent for a period of two months only, without pay.

An officer who does not resume his duties after the expiration of the periods above mentioned will be considered as having resigned.

SUPPLEMENT (I.) TO APPENDIX IV.

(See Article 33.)

EXPLANATORY TABLE REGARDING THE CONSTITUTION OF THE SUB-COMMITTEE.*

The fifteen members of each sub-committee are selected from the delegates according to the following classification:—

Eight members from 1st group.

Three members from the 2nd and 3rd group combined.

Four members from the 4th and 5th groups combined.

This distribution is based on the following particulars.

Groups of Countries.	Number of Votes.	Number of Countries.	Total Number of Votes.	Number of Members in each Sub-Committe.	Relative proportion to the Total Number of Votes.
I.	5	14	70	8	1 : 8·7
II.	4	4	16	3	1 : 7·4
III.	3	2	6		
IV	2	12	24	4	1 : 8·5
V.	1	10	10		
		42	126	15	1 : 8·4

* This classification was made in May, 1908, according to the grouping of the adhering countries at that date.

List of Adhering Countries Classified into Groups.*

Group I.	Group II.	Group III.	Group IV.	Group V.
5 Votes. 14 Countries.	4 Votes. 4 Countries.	3 Votes. 2 Countries.	2 Votes. 12 Countries.	1 Vote. 10 Countries.
1. Germany.	1. Egypt.	1. Bulgaria.	1. Belgium.	1 Costa Rica.
2. Argentina.	2. India.	2. Servia.	2. Chili.	2. Cuba.
3. Austria.	3. Mexico.		3. Denmark.	3 Ecuador.
4. Hungary.	4. Persia.		4. Canada.	4. Ethiopia.
5. Brazil.			5 Australia.	5. Mauritius.
6. China.			6. New Zealand.	6 Luxemburg.
7. Spain.			7. Greece.	7. Montenegro.
8. United States of America.			8. Norway.	8. Nicaragua.
9. France.			9 Holland.	9. Peru.
10 Great Britain and Ireland.			10. Portugal.	10. Salvador.
11. Italy.			11 Sweden.	
12 Japan.			12 Switzerland.	
13. Roumania.				
14 Russia.				

* This classification was made in May, 1908, according to the grouping of the adhering countries at that date.

SUPPLEMENT (II.) TO APPENDIX IV.

(See Articles 41 and 44.)

A.—Table indicating the Salaries of the Staff.

—	—	After 4 Years.	After 8 Years.	After 12 Years.	After 16 Years.	After 20 Years.	After 24 Years.	After 28 Years.	After 32 Years.
	Frs.	Frs.	Frs.	Frs.	Frs.	Frs.	Frs.	Frs.	Frs.
General Secretary	22,000	.....	.....	.....	.....	.....	.....	.....	.....
Head of Division	20,000	.....	.....	.....	.....	.....	.....	.....	.....
Librarian	10,000	11,000	12,000	13,000	14,000	.....	.....	.....	.....
Head of Branch	10,000	11,000	12,000	13,000	14,000	15,000	.....	.....	.....
Assistants to the General Secretary	6,000	6,600	7,200	7,800	8,400	9,000	.....	.....	.....
Translators (1st Class)	5,000	5,500	6,000	6,500	7,000	7,500	8,000	.....	.....
Translators (2nd Class)	4,000	4,400	4,800	5,200	5,600	6,000	6,400	6,800	7,200
Clerks (1st Class)	3,000	3,300	3,600	3,900	4,200	4,500	4,800	5,100	5,400
Clerks (2nd Class)	2,400	2,640	2,880	3,120	3,360	3,600	3,840	4,080	4 320
Shorthand-typists	1,800	1,980	2,160	2,340	2,520	2,700	2,880	3,060	3,240
Ushers and porter	2,000	2,200	2,400	2,600	2,800	.....	.....	.....	.....
Office-keepers	1,800	1,980	2,160	2,340	2,520	.....	.....	.....	.....
Messengers	1,400	1,540	1,680	1,820	1,960	.....	.....	.....	.....

B.—Table indicating the Distribution of the Staff.

Departments.	Officials and Employees.	No.	Salary.	Total.	
			Frs.	Frs.	Frs.
President's Branch	Editor-translator of 2nd Class.	1	4,000	4,000	4,000
1st Division :					
General Secretary's Branch	General Secretary	1	22,000	22,000	51,200
	Assistant	1	7,200	7,200	
	"	1	6,000	6,000	
	Editor-translators of 1st Class.	1	5,000	5,000	
	Editor-translators of 2nd Class.	2	4,000	8,000	
	1st Class Clerk	1	3,000	3,000	
Library	Librarian	1	10,000	10,000	23,000
	Editor-translators of 1st Class.	2	5,000	10,000	
	1st Class Clerk	1	3,000	3,000	
2nd Division :					
I. General Statistics	Head of Division	1	20,000	20,000	69,200
	Head of Branch	1	10,000	10,000	
	Editor-translators of 1st Class.	2	5,000	10,000	
	1st Class Clerks	1	3,000	3,000	
	2nd Class Clerks	1	2,400	2,400	
II. Intelligence	Head of Branch	1	10,000	10,000	
	Editor-translator of 2nd Class.	1	4,000	4,000	
	2nd Class Clerk	1	2,400	2,400	
III. Diseases of Plants	2nd Class Clerk	1	5,000	5,000	
	Editor-translator of 2nd Class.	1	2,400	2,400	
3rd Division :					
I. Rural Labour	Editor-translator of 1st Class.	1	5,000	5,000	24,000
II. Economic and Social Institutions	2nd Class Clerk	1	2,400	2,400	
	Head of Branch	1	10,000	10,000	
	Editor-translator of 2nd Class.	1	4,000	4,000	
	1st Class Clerk	1	3,000	3,000	
	Shorthand-typists	3	1,800	5,400	5,400
	Total	....	.....	177,200	177,200
	Subsidiary Staff.				
1st Division :					
General Secretary's Branch	Usher	1	2,000	2,000	12,600
	Porters	3	2,000	6,000	
	Office-keeper	1	1,800	1,800	
	Messengers	2	1,400	2,800	
Library	Office-keeper	1	1,800	1,800	4,600
	Messengers	2	1,400	2,800	
2nd Division	Office-keeper	1	1,800	1,800	3,200
	Messengers	1	1,400	1,400	
3rd Division	Office-keeper	1	1,800	1,800	3,200
	Messenger	1	1,400	1,400	
		....	.....	23,600	23,600
Unattached Staff :—					
Translators				5,000	
Mechanic				2,400	
Total				.....	7,400
Reserve for personal allowances				50,000	
Gratuities and extra staff				6,000	
Total				.....	56,000

SUMMARY.

	Francs.
Total salaries of officials and employees	177,200
Total salaries of subsidiary staff	23,600
Unattached staff	7,400
Reserve, gratuities, and extra staff	56,000
Total	264,200

C.—Statement of Accounts for the Year 1908.

Income.	Amount received up to October 31, 1908.	Amount still due for 1908.	Total.
Ordinary Receipts:	Francs.	Francs.	Francs.
I. State Contributions:			
14 States of the 1st Group	132,000	204,000	336,000
3 " 2nd "	36,000		36,000
2 " 3rd "	6,000	6,000	12,000
14 " 4th "	26,975 69	15,024 31	42,000
12 " 5th "	3,000	15,000	18,000
Total	203,975 69	240,024 31	444,000
II. Interest on deposits at the Bank of Italy and on a bond for 1,000 lires (nominal) in Italian 3½ per cent Stock.	478 70	2,321 30	2,800
Extraordinary Receipts:—			
III. Amount received for the year 1909:			
From 2 States of the 4th group	2,056		2,056
" 1 State " 5th "	38 65		38 65
Total	2,094 65		2,094 65
Total income	206,549 04	242,345 61	448,894 65

Expenditure.	Amount paid up to October 31, 1908.	Amount still to be paid in 1908.	Total.
Ordinary Expenditure—	Francs.	Francs.	Francs.
I. Staff:			
Salaries and allowances	4,786 80	2,513 20	7,300
II. Maintenance:			
1. Upkeep of building	228 20	221 80	450
2. " garden		550	550
3. " furniture		200	200
4. Lighting	587 56	1,312 44	1,900
5. Electric Power	269 60	1,350 40	1,620
6. Heating		3,100	3,100
7. General expenses	715	85	800
8. Water-rate (annual)	603 35	603 35	1,206 70
Total	2,403 71	7,422 99	9,826 70
III. Office Expenses and Correspondence:			
1. Stock	862 90	137 10	1,000
2. Expenses of correspondence:			
(a) Post	362 07	237 93	600
(b) Telegraph	58 85	291 15	350
(c) Telephone		200	200
3. Subscription to the City Telephone		255	255
4. Allowances to Postal officials for special services to the Institute	170	330	500
Total	1,453 82	1,451 18	2,905
IV. Library and Printing:			
1. Purchase of books, periodicals, and newspapers	162 70	1,237 30	1,400
2. Translation allowances		300	300
3. Cost of printing	539 50	1,460 50	2,000
Total	702 20	2,997 80	3,700

STATEMENT OF ACCOUNTS FOR THE YEAR 1908—*Continued.*

EXPENDITURE.	Amount paid up to October 31, 1908.	Amount still to be paid in 1908.	Total.
	Francs.	Francs.	Francs.
V. Miscellaneous expenses:			
1. Various allowances	.....	1,000	1,000
2. Sundry and unforeseen expenses	12·70	11,455·60	11,468·30
Total	12·70	12,455·60	12,468·30
Extraordinary Expenditure—			
VI. Installation expenses	1,463·15	4,636·85	6,100
Total expenditure	10,822·38	31,477·62	42,300

BALANCE.	Amount received up to October 31, 1908.	Amount still to be paid in 1908.	Total.
	Francs.	Francs.	Francs.
Excess of income over expenditure	195,726·66	210,867·99	*406,594·65

* This sum includes 2094·65 francs paid in advance for 1909.

SUMMARY OF ACCOUNTS FOR THE YEAR 1908.

INCOME.	Amount received up to October 31, 1908.	Amount still due for 1908.	Total.
	Francs.	Francs.	Francs.
Ordinary Receipts—			
I. State contributions	203,975·69	240,024·31	444,000
II. Interest on deposits, &c.	478·70	2,321·30	2,800
Extraordinary Receipts—			
III. Amount already paid for the year 1909	2,094·65	.....	2,094·65
Total income	206,549·04	242,345·61	448,894·65

SUMMARY OF ACCOUNTS FOR THE YEAR 1908—*Continued.*

EXPENDITURE.	Amount paid up to October 31, 1908.	Amount still to be paid in 1908.	Total.
	Francs.	Francs.	Francs.
Ordinary Expenditure—			
I. Allowances and salaries	4,786·80	2,513·20	7,300
II. Maintenance	2,403·71	7,422·99	9,826·70
III. Office expenses and correspondence	1,453·82	1,451·18	2,905
IV. Library and printing	702·20	3,097·80	3,700
V. Miscellaneous expenses	12·70	12,455·60	12,468·30
Extraordinary Expenditure—			
VI. Installation expenses	1,463·15	4,636·85	6,100
Total expenditure	10,822·38	31,477·62	42,300

BALANCE.	Amount received up to October 31, 1908.	Amount still due for 1908.	Total.
	Francs.	Francs.	Francs.
Excess of income over expenditure	195,726·66	210,867·99	*406,594·65

* This sum includes 2,094·65 francs paid in advance for 1909.

D.—BUDGET FOR THE YEAR 1909.

INCOME.		
	Francs.	Francs.
Balance from the preceding account—		
1. Excess of income over expenditure in 1908		404,500·00
2. Amount received for the year 1909 from:		
(*a*) Two states (Group IV.)	2,056	
(*b*) One state (" V.)	38·65	
		2,094·65
Ordinary Receipts—		406,594·65
I. State contributions:		
14 states of group I.	336,000	
3 " II.	36,000	
2 " III.	12,000	
14 " *IV.	39,944	
12 " *V.	17,961·35	
* See also above.		441,905·35
II. Interest on deposits at the Bank of Italy and on a bond for 1,000 lires (nominal) in Italian 3½ per cent stock		1,000
Total income		849,500

BUDGET FOR THE YEAR 1909—*Continued.*

EXPENDITURE.		
Ordinary Expenditure—	Francs.	Francs.
I. Staff:		
1. Cost of representation:		
(*a*) President	10,000	
(*b*) Vice-president	5,000	
		15,000
2. Salaries and allowances, according to the establishment		264,200
3. Maximum, estimate for retirement allowances to the staff and employees at the rate of 25 per cent of their salaries		26,580
4. Amount to transfer to a Provident and Pension Fund at the rate of 10 per cent on the salaries paid		2,360
Total		308,140
II. Maintenance:		
1. Upkeep of building		4,250
2. " two lodges		400
3. " garden		1,700
4. " furniture		3,590
5. Lighting:		
(*a*) Electric light	3,500	
(*b*) Other means	100	
		3,600
6. Electric power:		
(*a*) Pneumatic post	3,500	
(*b*) Vacuum cleaner	250	
(*c*) Passenger lift	250	
(*d*) Goods lifts (3)	260	
(*e*) Ventilators	800	
		5,060
7. Heating:		
(*a*) Coal	4,400	
(*b*) Gas	600	
		5,000
8. General expenses		2,550
Total		26,000
III. Office expenses and correspondence:		
1. Stock		3,000
2. Expenses of correspondence:		
(*a*) Post	?	
(*b*) Telegraph	?	
(*c*) Telephone	?	
		300,000
3. Telephone subscription (for messages within the city)		540
4. Allowances to postal officials for special services to the institute		2,460
Total		306,000
IV. Library and printing:		
1. Purchase of books, periodicals and newspapers		25,000
2. Cost of printing		25,000
Total		50,000
V. General expenses:		
1. Sundry and unforeseen expenses		39,360
Extraordinary expenditure—		
VI. Installation expenses		20,000
Total expenditure		749,500
Surplus for transfer to a Special Reserve Fund		100,000

Summary of the Budget for the Year 1909.

Income.

	Francs.
Balance from the preceding account	406,594·65
Ordinary receipts :—	
I. State contributions	441,905·35
II. Interest	1,000
Total	849,500

Expenditure.

Ordinary expenditure :—	
I. Staff	308,140
II. Maintenance	26,000
III. Office and correspondence	306,000
IV. Library and printing	50,000
V. Miscellaneous	39,360
Extraordinary expenditure :—	
VI. Installation expenses	20,000
Total	749,500
Surplus for transfer to a special reserve fund	100,000

E.—Comparative Budget for the Years 1908 to 1910.

Assets. Sub-heads.	Estimate for the Year 1908.	1909.	1910.	Liabilities. Sub-heads.	Estimate for the Year 1908.	1909.	1910.
Balance from preceding account	.....	404,500	.....	Staff	7,300	308,140	308,140
State contributions	444,000	444,000	*441,000	Maintenance	9,826·70	26,000	26,000
Interest on deposits of the bank of Italy and on a bond for 1,000 lires (nominal) in Italian 3½ per cent stock	2,800	1,000	3,000	Office and correspondence	2,905	306,000	306,000
Contribution by H.M. the King of Italy	.....	.....	300,000	Library and printing	3,700	50,000	50,000
				Miscellaneous (various and unforeseen) expenses	12,468·30	39,360	36,860
				Installation expenses	6,100	20,000	20,000
				Excess of income over expenditure to be carried forward	404,500	.....	.....
				Special reserve fund	.....	100,000	.....
Total	446,800	849,500	747,000	Total	446,800	849,500	747,000

* The General Assembly is empowered by the Convention (Art. 10) to raise the unit of subscription to 2,500 francs, beginning in the year 1910. In such a case, the total amount would reach 740,000. A further increase cannot be made without the consent of the governments (Art. 5).

APPENDIX No. 21.

CANADIAN ARCHIVES—REPORT OF THE WORK OF THE BRANCH FOR THE YEAR 1908.

(Extract from the Report of the Minister of Agriculture.)

To the Hon. S. A. FISHER,
Minister of Agriculture,
Ottawa.

SIR,—I have the honour to submit to you a report of the work of the Archives Branch for the year 1908.

On the 9th of June, 1907 (report of the Department of Agriculture for 1908, p. 54) the Archives Branch had received from France copies of Série B., 'Despatches and Orders of the King concerning the Colonies,' analysed by the late M. Richard as far as volume 23 inclusive. Up to the month of May, 1909, further copies of this series have been received as follows:—

B. 25 (1704) analysed by M. Richard, supplementary report, 1899 (pp. 356-366).
B. 27 (1705-1706) analysed by M. Richard, supplementary report, 1899 (pp. 366-382).
B. 29 1707-1708) analysed by M. Richard, supplementary report, 1899 (pp. 383-408).
B. 30 (1708-1709) analysed by M. Richard, supplementary report, 1899 (pp. 409-420).
B. 32 (1710) analysed by M. Richard, supplementary report, 1899 (pp. 420-429).
B. 33 (1711) analysed by M. Richard, supplementary report, 1899 (pp. 429-437).
B. 34 (1712) analysed by M. Richard, supplementary report, 1889 (pp. 437-452).

The six volumes represent 4,000 pages of manuscript. Volumes 24, 26, 28 and 31 of series B relate only to the West Indies, and according to M. Richard's report, it is unnecessary to copy them.

In series C 11 of the Colonial Archives, M. Marmette in his report for 1885 (p. xxvi of English version, p. xxvii, French text) mentions under the title 'Continuation of the same series,' sixteen volumes of 'Correspondance Générale.' In his calendar for 1887 (p. ccclxv) he says that he has omitted for the present vols. 1-7, inclusive, of this collection as they relate solely to Newfoundland.

These volumes have not been analysed, and as they contain all the correspondence of the Governors of Plaisance from 1661 to 1714, or one year after the Treaty of Utrecht, we have considered it advisable to have them copied immediately, in order that the Archives may possess the most important documents concerning the early administration of Newfoundland.

There has been an addition this year to the série B of seven volumes—

Vol. 1.	North America, Newfoundland, Ile Saint Pierre, Ile Saint Jean, the Magdalen Islands and Ile aux Oisseaux.. ..			(1661-1693)
Vol. 2.	"	"	"	.... (1694-1699)
Vol. 3.	"	"	"	.... (1700-1702)
Vol. 4.	"	"	"	.... (1703-1705)
Vol. 5.	"	"	"	.... (1706-1707)
Vol. 6.	"	"	"	.... (1708-1709)
Vol. 7.	"	"	"	.... (1709-1714)

The period of 1661-1714 includes the administration of all the Governors of Plaisance from the establishment of the colony to the cession to England in 1713.

We have begun to transcribe in France at the Archives of the Minister of Foreign Affairs the series of manuscripts relating to Canada which was analysed by M. Marmette in the report for 1883. Up to the present we have received a copy of vol. 1, 'Fonds Amérique' (1592-1661), mentioned on page 128 of the report for 1883.

From the Bibliothèque Nationale we have received the following documents:—

1. Récit d'une sauvagesse esquimau sur l'établissement des Français au Labrador (Nouvelle Acquisition, 2549).

2. Registre de l'extinction des monnaies de cartes du Canada, qui seront brûlées selon l'arrêt du 29 juin 1764 (Fonds français, 4586).

3. De la pêche et du Commerce des Français en Amérique devers la rivière du Canada et devers Terreneuve et comme les Anglais les y peuvent empêcher. Des usurpations des Anglais sur les Français en la Nouvelle-France, depuis 1611.

La Nouvelle-France de Terreneuve découverts par les Français dès 1504. (Fonds français, 4925).

4. Copie d'un édit de création d'un Conseil souverain en la Nouvelle-France. Québec. (Ancien fonds français, 5581, Marine et colonies.)

5. Mémoires touchant la navigation entre autres à Terreneuve, signés par Rasilly:—

Articles arrêtés entre les deux rois pour la liberté du commerce entre leurs sujets.

Plainte publique sur l'interruption du commerce. (Fonds français, 4826).

6. Voyages de Cartier. (Fonds français, 5644).

7. Seconde navigation de Jacques Cartier. (Ancien fonds français, 5653.)

8. 'Mélanges.' Mémoire sur le commeree étranger et maritime. Unsigned, without date, but after 1763. (Fonds français, 5682).

9. Journal de la campagne sur le *Castor* faite au Canada en 1746, par M. Laliées. (Fonds français, 6349.)

From the collection Moreau Saint-Méry, Série F. 3, vol. 24, the following documents have been copied and transmitted to the Archives:—

Campagne des Chicachas.

Journal de de Léry, février 1740.

Lettre de Noyan, 1739.

(See report of Richard, 1905, p. 461.)

ENGLAND.

In England the following papers have been copied:—

1. Selkirk papers.

This valuable collection relating to the establishment of the Selkirk colony in the province of Manitoba is in the possession of Captain Hope, a descendant of the Selkirk family, at St. Mary's Isle, Kirkcudbright, Scotland. Through the influence of Lord Minto copies were obtained for the Archives under the direction of Mr. Garson, notary of Edinburgh. When the report for 1908 was prepared we had 26 volumes in the Archives, and an index. Twenty new volumes have been received this year, making a total of 46 volumes, or 12,602 pages, which have been arranged in portfolios and indexed for reference.

2. The transcription of colonial correspondence relating to the maritime provinces is being continued. We have received the following volumes this year:—

Prince Edward Island (1814).

Cape Breton (1802-3-4).

Nova Scotia (1803-5-6).

The volume for 1804 was already in the office. The analysis made by Dr. Brymner of the volumes relating to the maritime provinces terminates on the 31st December, 1801.

3. We have received twenty-four logs of British ships before Louisbourg in 1756, 1757, 1758, namely, logs of the *Oxford, Somerset, Northumberland, Lancaster, Terrible, Pr. Frederick, Nottingham, Shannon, Bedford, Devonshire, Vanguard, Success, Centurion, Fougereux, Jamaica, Norwich, Grafton, Litchfield, Pembroke.*

4. From the General Post Office in England we have received three volumes of copies of correspondence relating to the Canadian Post Office for the years 1841, 1842, 1843. The volumes contain a table of contents. The collection now comprises 17 volumes from 1792 to 1843.

5. The account of George Thew Burke, as secretary, Superintending the Richmond Settlement, Upper Canada, from the 25th December, 1820, to the 24th March, 1823. (Copied from the Audit Office—Declared accounts, settlers—Roll. C., Bundle 2131.)

6. From the Record Office, London, 'A nominal list of the American Loyalists.'

7. The Journal of the House of Assembly of Uppor Canada from 1st February to 12th March, 1810. (Copied in Colonial Office—45—vol, 138.)

Fisheries and Boundaries.

The questions which are now raised between Canada, the United States and Newfoundland respecting fisheries, the boundaries of Labrador and the Bay of Fundy have made it necessary to carry on research in the Archives of France and England. During the course of the year we have received five large portfolios of documents copied at the Department of Foreign Affairs, France, relating to England and the United States in 1782-1783. We have also received from England several thousand folios concerning the Labrador fisheries taken from the colonial correspondence and the Oswald, Shelburne and Lansdowne collections for the years 1712-1715, 1772, 1782, 1783, 1819-1832, 1841-1850.

The value of these documents which contain the political correspondence exchanged at such an important period of our history is obvious. Further details concerning these papers cannot be given, but they will be of great service in the preparation of memoires in cases of arbitration or of international conventions. These documents form a special class and for the present are available only or administrative purposes.

It would appear advisable to have copies made of all documents deposited in European Archives bearing on Canada, especially those relating to boundaries, commerce or navigation. We should also possess copies of all preliminary proceedings respecting treaties or conventions between England and other countries which may in any way affect Canada.

The documents copied in Europe are compared before they are sent to the Archives and the place where the original is deposited is marked on each paper. The portfolios are analysed and chronological tables prepared to facilitate search.

RESEARCH AND TRANSCRIPTION OF DOCUMENTS IN CANADA.

QUEBEC.

1. During the past year the Abbé O'Leary has continued his work in the province of Quebec, and has made an examination of the documents deposited in public offices and in various private collections.

Amongst the important documents which he has copied and sent to the Archives are: 'John Polley's Journal which was kept in the year 1775, wherein is contained an account of the battles and skirmishes which happened near Boston between the American and Regular Troops when we were engaged in the Civil War.'

(Copy of the original in the Library of the Chicago Historical Society.)

Copies of two letters presumably written by *General E A. Theller* whilst a political prisoner in the Citadel, Quebec, dated June 19 and 22, 1838. (These two letters and General Theller's Defence were found in his cell after his escape by Sergeant McDonald of the prison guard. They are now the property of Mr. T. I. Walsh, Quebec.)

Letters, private and official reports, returns, &c., in connection with the American invasion of Canada by General Schuyler, Brigadier General Montgomery, Colonel Arnold and Colonel Ethan Allan, in 1775 (from manuscripts, the property of Mr. Patrick Doyle, Quebec.) With an index of the contents.

Wesleyan-Methodism in Quebec from 1806 to 1849 (extracts from the diary of the late Peter Langlois, a native of Guernsey, born in 1784, February 29), died in Quebec at the age of 82 years.

An inventory of plans and maps deposited in the Crown Lands Department, Quebec.

An inventory of the Civil Status of the District of Quebec deposited in the Registry Office, Quebec.

A general catalogue of the minutes of the Road Surveyors of the Government of Quebec deposited in the Judicial Archives, Quebec, with a copy of the minutes of the Voyer for the city of Quebec (1668 to 1767).

Notes on the Archives of the General Hospital, Montreal.

We have also acquired several fine specimens of manuscripts signed and sealed by officials of the French Régime. They are deposited in the Library of the Archives. The following list will indicate their value:—

List of Manuscripts.

1668 Talon, Intendant.
Instructions given to Laurent Dubaust, ferryman on the St. Charles river, to pass free all persons going to or coming from the King's Borough, signature.

1670. Bouteroue, Claude, Intendant.
Passport (?) for the Reverend Jesuit Fathers (on parchment). Signature and seal.

1695. Frontenac, Ls. de Buade, Comte de.
Discharge of Pierre Billeron, a private in the Co. of Sr. de Noyan. Signature and seal.

1707. Vaudreuil, Ph. Rigaud, Marq. de.
Raudot, Jacques, Intendant.
Renewal in favour of the Reverend Jesuit Fathers of the right to keep a ferry for passengers on the River Saint Charles between the General Hospital and the Récollet Convent. Signatures (2), and seals (2).

1715. Bégon, Michel, Intendant.
Certificate to the effect that maître Barbet is a Notary Royale for the Prévôté of Quebec. Signature and seal.

1735. Hocquart, Gilles, Intendant.
Prévôté of Québec. Signature and seal.

1743. Beauharnois, Chs., Marq. de.
Commission to Ls. Guy as Captain of the 12th Co. Militia of Montreal. Signature and seal.

1749. La Jonquière, M. le marq. de.
Bigot, François, Intendant.
Concessions to Sieur Gautier of the Post of 'La Baye des Chateaux' on the north shore of the St. Lawrence and adjacent islands. Signatures (2) and seals (2).

1752. La Galissonnière.
Private letter. Signature and seal.

1755. Duquesne, M. le Marquis.
Commission of Lieutenant to Sr. Augé in the Co. of Duffy Militia of Montreal and addressed to Sieur de Couagne, Colonel of Militia in the same district. Signature and seal.

1761. Gage, Brigadier General Thomas, Governor of Montreal.
Commission of Lieutenant of Militia to Sr. Carrignan. Signature and seal.

1763. Murray, General James.
Certificate to the effect that M. M. Panet and Saillant are both Notaries Royales. Signature and seal.

The following volumes in the Archives of Quebec have been copied:—

A volume of the Registers of the Military Council of Quebec (13th June to 30th September, 1761).

A volume of the registers of the Prévôté of Quebec (31st August, 1756, to 9th October, 1757).

A register of the Civil Status of the Parish of Montreal (16th August to 31st December, 1728).

A chronological table of the 42 volumes of the Ordonnances des Intendants has also been prepared.

Amongst the manuscripts recently acquired relating to the Province of Quebec, the following will prove of special interest:—

Five letters relating to the services of Captain Douglas (Vice-Admiral Sir Charles) in Canada during the winter of 1776.

A memoiré of Toussaint Pothier on the state of affairs preceding the events of 1837-1838.

Stuart's observations on the union of Lower and Upper Canada, 1823.

Brief remarks on the importance of retaining the British North American Colonies both as British possessions and as an impediment to the progress and power of the United States. Anonymous, about 1839. Important.

A descriptive catalogue of manuscripts deposited in the Hôtel-Dieu, Quebec.

Journals of Admiral Bayfield concerning his explorations in the Gulf and River St. Lawrence (1829-1853). Six volumes donated by Mr. Bayfield, of Vancouver.

A number of pamphlets and political papers, donated by Lady Caron.

During the preparation for the celebration of the Tercentenary of the foundation of Quebec many researches were made in the Archives in connection with official publications, and we have made a collection of 10 volumes of printed extracts from Journals and correspondence relating to the event.

The list of all the subscribers is also deposited in the Archives.

ONTARIO.

Papers collected by Mr. Laidlaw and deposited in the Archives, 1908-1909:—

1. *Capt. Johnston's Diaries.*—These diaries belong to Mr. W. H. Johnston, of Pefferlaw, Ont., and were brought to the Archives to be copied if deemed advisable.

2. *Minute BoPoks Rideau Methodist Circuit.* Received from Mr. James Ross, of Smith's Falls, on the understanding that they were to be returned to him if he so desires. (1819-1874.) (1823-1826.)

3. *Gilkison Papers.*—This collection consisting of manuscripts, diaries, printed books, &c., is the property of Miss Augusta I. G. Gilkison, of Brantford, Ont. Miss Gilkison has sent a number of the papers to the Archives for examination, with a view to their purchase by the department if considered of sufficient value.

4. *James Anderson Papers.*—The originals are in the possession of Mr. James Anderson, of Sutton, Ont. Copy of this collection was made by Mr. Laidlaw for the Archives (in 4 volumes).

Journals of Arctic expeditions in search of Sir John Franklin (1885). He was a chief factor. Journey from Fort Simpson, Mackenzie, to the mouth of the Great Fish river, via Great Slave lake, &c., with index (vol. 1).

Letters to and from Lady Franklin with index (vol. 2).

Letters and journals with index (vol. 3).

Journal of a trip made from Fort Simpson to Fort Good Hope in 1854 (vol. 4).

5. *Charles Jones Papers.*—These papers which were found in the Court House at Brockville, were donated to the Archives by the County Council of Leeds and Grenville, a resolution to that effect being passed at a session of that body in June, 1908 (2 vols.).

6. *Askin Papers.*—These papers consist of general and private correspondence of John and Charles Askin, of Detroit and Sandwich, covering a period of over sixty years—1779 to 1840; Military papers, 1794-1815; diaries, 1774 to 1823; account books, journals, ledgers, &c., 1787 to 1825.

7. *Talbot Settlement.*—Papers on Talbot settlement (2 vols).

The papers fill 40 large portfolios and the account books, &c., are about 15 in number.

These papers were found amongst the documents transferred by the Privy Council.

Land Grants in Ontario.

In the Department of Crown Lands, Ontario, a list has been copied of the land grant which will prove useful for future research.

Land grants under Lieutenant-Governors Simcoe and Hunter, arranged alphabetically according to district. Three portfolios.—M. 805, 806, 807.

2. Fiats, military, emigrant grants. (Regulations of the 6th July, 1804, and 29th July, 1820.)

Dates of Attorney-General Fiats (1821 to 1835) numbered 1 to 1,800. There is an index of names in alphabetical order at page 165.

Fiats, Militia and Landlords, issued under tickets of location instituted in the year 1819 (1833-1845), numbered LB 600 to LB 1,093. Index of names in alphabetical order at page 32.

Fiats, United Empire Loyalists (Regulations 6th July, 1804). (1820-1835) numbered 4,302 to 4,408. Book number 3. Index of names in alphabetical order at page 15, M. 808.

3. Surveyor General's locations (1803-1807), pages 1 to 95. Index of names in alphabetical order at page 95.

Surveyor's General's locations (March, 1811, to August, 1819) and militia locations (1820), pages 1 to 131. Index of names in alphabetical order after page 131.

Locations by agents (page 1 to 261). From page 294 to page 347, there is an index of names in alphabetical order. On page 1 there is an index of locations in each of the following townships:—Dummer, Ramsey, Duro, Otonabee, Ennismore, Emily, Asphodel, Ops, Smith, Harvey, Belmont, Verulan, Fenelon, St. Vincent, Horton, McNab, Victoria, Seymour, and Bathurst and Ottawa districts (Newcastle district, 1839-41) Midland district, Dummer (31-34).

At page 19, list of emigrant settlers fom the south of Ireland located by Peter Robinson in 1823.

Irish emigrant settlers in Duro in 1826, page 31.
" " Otonabee, 1825, page 33.
" " Ennismore, 1825, page 35.
" " Emily, page 37.
" " Asphodel, 1825, page 42.
" " Ops, 1825, page 43. M. 809.

List of land grants. Fiats No. 3 (1820-1833) Nos. 1657-2661. After page 101 there is an index of names in alphabetical order.

4. List of land grants (1833-1839). (Full fee regulations, 1804.) Fiats No. 4, Nos. 2,662 to 3,861. After page 141 there is an index of names in alphabetical order.

Docket book for Attorney General's Fiats on Grants, 1803-1816.

Index of names in alphabetical order, at the end of book.

List of persons having asked warrants from the Surveyor General. Arranged in alphabetical order (fees unpaid), pages 1 to 23.

Land Fiats issued under commissioner's reports, pages 24-159.

List of persons having asked warrants from the Surveyor General, arranged in alphabetical order (fees paid), pages 1-17.

Land fiats issued by commissioners (1832-45). Pages 1-73. After page 73 there is an index of names in alphabetical order. M. 810.

Ottawa old periodicals.

Mrs. Rogers, of Ottawa, has donated to the Archives a number of old newspapers relating to the capital:—

Old periodicals, Ottawa, Bytown.. 1813-1900
" " 1855-1904
Manuscripts *re* early times Bytown.. 1833-1904
Agricultural Society minute books—magazines.. 1868-1903
Photographs.. 1832-1839
Divers pamphlets.. 1879-1903
" 1891-1901

This collection forms seven portfolios of considerable interest.

MARITIME PROVINCES.

Dr. Hannay has continued his investigations in the maritime provinces and during the course of the year three instalments of his work have been received:—

1. A collection of the inscriptions on tombstones in the cemeteries of New Brunswick, especially at Fredericton and in the county of York.

2. Observations on the maritime provinces.

3. A complete analysis of the papers of the Legislature of New Brunswick for the years 1786, 1787, 1789, 1791, 1797, 1807, 1817, 1821, 1823, 1825, 1826 and 1827 to 1838.

We have acquired 16 volumes of historical notes on the Acadians of the Madawaska district, and three volumes of papers of the New Brunswick boundaries. The original letters and sermons of Father Ligogue, missionary to the Acadians at Baie Sainte Marie (1799-1844).

Two volumes of documents relating to the Acadian refugees after 1758 have been copied at Boston.

MANITOBA AND THE NORTHWEST TERRITORIES.

While continuing the work of transcribing the Selkirk papers in Scotland, the office has obtained copies of the papers of Murdoch on the early days in Calgary; the minutes of the council of Assiniboia; two volumes relating to the troubles in Manitoba in 1885-1886; a copy of the evidence taken at the close of the Rebellion in 1869-70; the proclamation signed by Louis David Riel, captured at Batoche, donated to the Archives by Colonel Sherwood, C.M.G.

BRITISH COLUMBIA AND VANCOUVER.

The Archives has received the following journals relating to the province:—

Journal of John Work.. .. .. .

SESSIONAL PAPER No. 15

Treasury Chamber, Letter sent, 1850-54	1 vol.
Prince Edward Island Militia, Correspondence, 1858-63	
" " Army " 1835-67	1 "
War Department Lands, Buildings, &c., in Canada, 1855-77	1 "
" " " " 1878-89	1 "
Hills *vs.* Col. Fraser *et al*, Report of Trial, 1856-57	2 "
Royal Irish Rifles, Correspondence *re* Interior Economy	1 "
Transfer of Barracks, Buildings and Lands to the Dominion Government	1 "
Royal Engineers, New Brunswick—Miscellaneous, 1864-67	2 "
" " Lands, Buildings and Barracks, 1826-69	1 "
" " " 1827-72	1 "
" " " 1865-73	1 "
Perambulation reports and plans, New Brunswick	1 "
	78
Royal Engineers, New Brunswick—	
Intercolonial and Progress Reports, 1833-1850	1 "
Reports and estimates of works and repairs, 1835-1850	1 "
Monthly returns, extra pay, &c	1 "
Royal Engineers, Nova Scotia—	
Miscellaneous, 1856-1878	1 "
" 1865-1883	1 "
War Department—Lands in Nova Scotia, 1855-1864	1 "
" " " " 1865-1881	1 "
Lands in Nova Scotia—Cancel leases, 1855-1882	1 "
Barracks, Nova Scotia, 1866	
Lands at Sydney, C.B., 1858	1 "
Weekly returns of attendance at Divine service, Halifax, 1888	1 "
Letters and other papers, Halifax and out stations, 1844, 1848, 1849 and 1851	1 "
Royal Engineers—Champlain and St. Lawrence Railway, 1852-1857, Kingston miscellaneous, 1846-1856	1 "
Inspector General, Halifax—Letters received from the Ordnance Office, Nos. 1065-1140, 1850-51	1 "
Letters received at Halifax from the Inspector of Fortifications, England, 1856	1 "
Principal medical officer—Certificates and correspondence, 1885	1 "
Report of Main Guard mounted at Halifax, January to March, 1838	1 "
Royal Engineers—Intercolonial Railway encroachments on War Department Lands, 1855-1882	1 "
" Boundaries of the King's Wharf, Quebec, 1852, &c	1 "
Commissariat papers, 1847, 1856, 1866, 1870, Nova Scotia and New Brunswick	1 "
Commissariat papers, New Brunswick, 1867	1 "
" " " 1868	1 "
Establishment of Meterological Observatories at Kingston and Quebec, 1852-1854	1 "
Garrison Chaplains in the Maritime Provinces, 1846-51	1 "
New Brunswick Volunteer and Militia, 1839, 1860 and 1862	1 "
Indexes	1 "
Miscellaneous correspondence, 1780-1899	45 "
War Department, 1861-1879	14 "
Horse Guards, 1861-1876	4 "
Telegrams, 1863-1876	1 "

Deserters, 1872-1873	1 vol.
Military Secretary odd Nos. 7, 1858-1872	6 "
Office of Ordnance, 1840-76	1 "
Sedentary Militia, Montreal District, 1813	1 "
Quebec and Montreal Volunteer Militia, 1812-1814	1 "
Canadian Voltigeurs, 1812-1823	1 "
Canadian Chasseurs, 1813-1815	1 "
Canadian Voyageurs, 1812-1814	1 "
Embodied Militia, Quebec city, 1812-1813	1 "
" Quebec district, 1812-1814	1 "
" Trois Rivières district, 1812-1814	1 "
" Independent Companies, Montreal district, 1813	1 "
" 1st Battalion, 1812-1815	4 "
" 2nd " 1812-1814	3 "
" 3rd " 1812-1815	4 "
" 4th " 1812-1815	4 "
" 5th " 1812-1814	2 "
" 6th " 1813-1814	2 "
Upper Canada Militia, Muster Rolls pay-list	1 "
Militia Pensions, Upper Canada, 1836-1841	
" Canada West, 1841-1867	
" Dominion of Canada, 1867-71	50 "
Militia General orders, 1812-1869	5 "
War Claims, Upper Canada—Powers of Attorney to Robert Grant and S. Street, of Niagara, 1836-37	1 "
Northwest Rebellion, General Middleton's reports on engagements with the Rebels, 1885	1 "
Claims, Rebellion Losses, 1847	1 "
" " 1852-1853	3 "
Ottawa and Rideau Canal, 1855-1857	1 "
Statements of Services in the Army, 1868-72	1 "
Claims in connection with the Fenian Raids, 1865-66	1 "
Military Secretary to the Governor General, letters received, May to December, 1867	1 "
Adjutant General of Militia, letters received, 1856-65	34 "
" " drafts of letters sent	2 "
Militia Orders in Council, 1818-1869	1 "
Attorney General's opinion on Militia matters, U.C., 1838-1846	1 "
Claims for Medals, by Militiamen, Upper and Lower Canada, 1850-1851	1 "
Replies to confidential circular of August, 1862, *re* promotions in the Canadian Militia	1 "
Militia Service Rolls, 1863	1 "
Cash Accounts, Dorchester Light Dragoons and Corps of Guides, Lower Canada, 1812-1815	1 "
Militia Receipts for clothing, transports, &c., Upper Canada, 1866	1 "
Militia Rolls and pay-lists and annual returns, different regiments, U. & L.C. 1812-1813	1 "
Requisitions, Receipts, 1865-1866	
Commission Receipts, 1856-1863	
Pay-lists which accompanied the accounts for the quarter ended March 31, 1857	1 "
School of Military Instruction, 1864	
Promotions and Appointment, 1855	1 "

New Brunswick Volunteer Militia acquittance Roll, 1868.. . . . . .
Target Practice, 1864-1867.. . . . . .
General Court Martial, 1825-1854.. . . . . 1 vol.
Militia Pension. Pay from Nov. 1, 1866, to April 30, 1867. Vouchers 1-60.
Pay from May 1, 1867, to October 31, 1867. Vouchers 1-58.
Ridgeway Pension Claims Nos. 71-80, 1866 . . . . . 1 "
Contracts for supplies.
Inspection Reports, Volunteer Force, 1864-65.
Application for compensation, 1867.
Requisitions for clothing, 1866.. . . . . 1 "
Quarterly Returns, 1866-1867.
Half-yearly Returns, 1859-1863.
Blue-book Returns, 1855-1866.
Upper Canada General Returns of Vol. Servicemen, 1862.
Return of Employees in Adjutant General's Office, 1866-1867.
Return of appointments and recommendations, 1866.. . . . . 1 "
Accounts current of Paymasters, 1865-1869.. . . . . 1 "
Volunteer Militia Pay-lists—Active Service, 1866 . . . . . 1 "
" " 1862.. . . . . 1 "
Pay-lists of the Lennox Militia, 1812-1813.
Muster Rolls and pay-lists of the 9th Co. of Division of Isle Jésus, 1813.
Muster Rolls and pay-lists of the Royal Montreal Troop of Volunteer Cavalry with Terrebonne Division, Capt. George Platt, 1812-1814 . . . . . 1 "
Volunteer Militia. Monthly Pay-lists, Forms C., January to April, 1865.. 1 "
Militia Districts, Lower Canada—Drill of Volunteers, 1862, Nos. 5 to 10 inclusive (weekly state).. . . . . 1 "
Militia Rolls, L.C.—Abstract of 1864-1865.. . . . . 1 "
Militia Districts, U.C., Nos. 1 to 8, 1860-1862—Drill of Volunteers (weekly state).. . . . . 1 "
Monthly Pay-list—Volunteers, 1855-1856.. . . . . 1 "
Militia—Annual Returns of Regiments, U.C., 1824-1825.. . . . . 1 "
" " Battalions, 1856-1859.. . . . . 1 "
Militia Districts, U.C., Inspection Report, July to Dec., 1861.. . . . . 1 "
Non-Active Militia—List of Promotions and nominations, 1863-66.. . . . . 1 "
Militia Pensions—Enrolled Pensioners, enrolled local Pensioners, July 1, 1854, to June 30, 1859. Compensation in lieu of land, July 1, 1854—June 30, 1878, C.W.. . . . . 1 "
Nominal Roll, 1863-1865.. . . . . 1 "
Liste de recommendations pour promotions et nominations, 1861-1865, Nos. 2 à 11 et autres.. . . . . 1 "
Commissions in the Militia, 1838-1862.
Lease to retire from Militia with rank, 1850-51.. . . . . 1 "
Register number 5—Claims of Militiamen of 1812, Nos. 2,810 to 3,571.. . . 1 "
Military L. C. Commission receipts, 1856-1864.. . . . . 1 "
Military Districts, U.C., Annual returns, 1856, 1859-62.. . . . . 1 "
Militiamen entitled to land, War 1812-1815.. . . . . 1 "
Militiamen land claims.. . . . . 17 "
Militiamen land claims, 1820-1827.. . . . . 1 "
Militia Pensions, U.C. Accounts, 1828-32 . . . . . 1 "
" C.W., Pay-lists and vouchers, 1843-1845 . . . . . 1 "
" 1856.. . . . . 1 "
" 1854-57.. . . . . 1 "
" 1857-58.. . . . . 1 "

Militia Pensions, Receipts, 1840-1848	1	vol.
" " 1855-60-61	1	"
" " 1862-65	1	"
" " 1864-65	1	"
" " 1866	1	"
" Petitions, L.C., 1870-1840	1	"
" " U.C., 1837-1841	2	"
Militia Pay-lists, Annual Drill, 1856-1858	2	"
" Weekly Drill, 1857	1	"
" " 1858	2	"
" " 1860	2	"
" Nos. (1-121), 1867	1	"
Volunteer Militia, Monthly pay-lists, 1866	1	"
" " 1867	3	"
" pay-lists, 1864-1865	6	"
" " 1865-1866	1	"
" " 1866-1867	3	"
" " 1867-1868	1	"
Militia Correspondence. Odd Nos., 1841-1867	9	"
Militia Muster Rolls. Independent Cos., L.C., 1864-66	1	"
Militia—Application for Pensions, 1851-1867	2	"
" " Positions, 1854-1865	1	"
Adjutant General of Militia—Letters received, 1812-35, L.C	1	"
" " " 1812-37, U.C	1	"
" " " 1838-40, U.C	3	"
" " " 1841-67	22	"
Newspaper clippings on Militia matters, 1859-1860 and 1863, and some undated	1	"
Militia Adjt. Genl.—Letters received, no date	1	"
War 1812-1814 (from the Privy Council)	4	"
Fenian Raid (from the Privy Council)	1	"
Miscellaneous documents (1846-65)	1	"
	441	

Papers removed from the Department of the Secretary of State and other offices.

In conformity with an Order in Council passed in 1903, several departments have sent to the Archives most of their records prior to Confederation. A temporary classification has been made; the papers have been arranged in chronological order by provinces, and 1,889 portfolios have been added to the manuscript section from these sources. Each portfolio contains about 300 documents. The papers have been distributed as follows:—

Papers relating to Upper Canada (1823-1867)	631	vols.
Papers relating to Lower Canada	256	"

To these volumes may be added:—

Papers from the Department of Indian Affairs—		
Upper Canada	30	"
Lower Canada	18	"

SESSIONAL PAPER No. 15

Parliamentary papers—
Acts of Upper Canada (1797-1847).. 1 vol.
Statutes of Upper Canada (1817-1828).. 1 "
Ordinances of the Special Council of Lower Canada, 1837.. 1 "
" " " 1838.. 1 "
" of the Province of Quebec, 1777.. 1 "
Parliamentary papers, Upper Canada, 1839-1847.. 1 "
Writs of Summons to the Legislative Council, L.C.. 1 "
" of Election, L.C., 1800.. 1 "
" " " 1801-1816.. 1 "
" " " 1820-1821.. 1 "
" " " 1827-1830.. 1 "
" " " 1832-1833.. 1 "
Writs and returns of elections, P. of C. and D. of C., 1854-74.. 1 "
Recapitulation of votes given in Election of 1858, C.W.. 1 "
Appointments of Returning Officers and correspondence (1812-1837).. 1 "
Analytic Index to the State Books (1841-1867).. 2 "
Acts—Upper Canada, 1853, 1st Session, 4th Parliament, 16 Vic., Caps. 191-267.. 3 "
" " 1854-55, 1st Session, 5th Parliament, 18-19 Vic., Caps. 1-251.. 5 "
" " 1856, 2nd Session, 5th Parliament, 19-20 Vic., Caps. 1-140.. 2 "
Sessional Papers, U.C.. 1 "
Executive Council, L.C., Draft of minutes.. 1 "
Journals of the Leg. Council, U.C., 1815.. 1 "
House of Assembly, Addresses, 1835-36-38.. 1 "
Legislative Assembly, Executive Council, Public Works, Crown Lands, Sundries (1842-1866).. 1 "
Parliamentary papers (printed) (1810-1882).. 1 "
Petitions, L. & U. Canada (1805-1824), (1823-1834), (1835-49).. 3 "
Addresses to Sir H. B. Head *re* his departure from U.C.. 1 "
Oaths of office and State Oaths.. 1 "
Addresses to Leg. Council (1807-1851).. 2 "
Petitions from L. & U. Canada.. 2 "
Journals of the Leg. Assembly, P. of C., 1847.. 1 "
Municipal Act, L.C., 1847.. 1 "
Foreign Prints (1818-1840).. 1 "
Provincial Secretary Papers (1839-1860).. 2 "
Index to Provincial Secretary Correspondence (1832-1840).. 1 "
Fiats and Warrants, Provincial Secretary to Attorney General, C.W. (1843-1860).. 8 "
Addresses to the House of Assembly (1809-1837).. 3 "
Governor General's Secretary's Correspondence (1827-1865).. 21 "
" " " (1841-1853).. 1 "
Application to the Governor General for his recommendation to the Legislature.. 1 "
Auditor General's Report, C.E.. 1 "
Public Accounts, U.C.. 2 "
Public Accounts, L.C. (1815-1832).. 7 "
Public Accounts, U.C. & L. C. (1825-1840).. 1 "
Administration of Justice (Hesse District).. 1 "
Court of Requests, U.C.. 1 "

Grand Jurors of Montreal	1 vol.
Commissioners of Peace, U.C.	1 "
Commissioners of Small Causes	1 "
Bailiffs' Bonds, U.C. (1857-67)	4 "
Court Summons, U.C. (1796-1831)	1 "
Oaths of Office	1 "
Criminal Cases, C.W. (1842-56)	1 "
Attorney General Monk's Claims	1 "
Attorney General's Correspondence, C.W. (1842-1866)	11 "
Provincial Secretary Cash Books, L.C. 1808	1 "
Index to Provincial Secretary's Letters (1831-34)	1 "
Trinity House, Quebec, 1815	1 "
List of Vessels which entered Port of Quebec (1810-1820)	1 "
Montreal Customs, Accounts, Returns (1843-44)	1 "
Montreal Customs, Boarding Bills, 1844	1 "
Customs, Port of Sandwich, 1804-1807	1 "
Customs, Port of Montreal, 1845-6	1 "
Ports in U.C., duties collected (1840-1-2)	1 "
Port of Quebec, duties collected (1795, 1838-9, 1841-6-7)	1 "
Port of Prescott, 1823-30	1 "
Customs, U.C., 1833	1 "
Imports, U.C.	4 "
Seizures	2 "
Customs Returns, U.C., 1827-28	1 "
Emigration Papers, Miscellaneous, C.E. (1845-51)	1 "
Passes to Emigrants, U.C.	1 "
Quarantine Passports, Grosse Isle (1834)	2 "
Canals	2 "
Trent River Improvements (1838-40)	1 "
Bank of Upper Canada	1 "
Roads, Pay-lists Accounts (1854-66)	8 "
Municipal By-laws, C.W. (1842-46)	5 "
Crown Lands and Clergy Reserve, C.E. (1842)	1 "
Land Grants, Township of Hinchinbrooke (1831-1840)	1 "
Land Papers, C.W. (1846-54)	1 "
Mulloch & Rochester, Land Papers, Township of Nepean (1852-53)	1 "
Crown Lands Department, C.W. (1859-61)	1 "
Land Papers	1 "
Land Grants	1 "
Alphabetical Lists of Land Papers transferred to Crown Lands Department of Quebec (1819)	1 "
Cultivation of Hemp, U.C. (1808-13)	1 "
Census	1 "
Census, U.C. & P. of Q. (1826-62)	1 "
School Returns	4 "
Education Bill, U.C., 1837	1 "
Educational Pamphlets	2 "
Post Office Commission Correspondence (1840-41)	1 "
Pedlars Licenses	1 "
Tavern Licenses, Quebec, 1845	1 "
Red River Rebellion	1 "
A. Comeau, Police Inspector, Montreal, Police Orders, 1841-3	1 "
P. E. Leclerc, Police Magistrate, Montreal, Letter Books, 1838-39	1 "

Rules, Regulations and By-laws for the guidance of the Montreal Police and the Proclamation fixing the limits of the City for Police purposes, 1839.	1	vol.
Draft of Dispatches, Colborne to Glenelg	1	"
Observations on the removal of Sir John Colborne as Lieut.-Governor of Upper Canada, by W. L. McKenzie, 1831	1	"
Executive Council Reports (1842-3)	1	"
Official and Private Correspondence of Mr. Himsworth, Clerk of the Executive Council (1842-74)	1	"
Private Papers of F. W. & C. O. Ermatinger (1836)	2	"
" Edward W. Gray's Estates (1818-27)	1	"
" J. H. Dunn, Receiver General (1821-33) U.C.	1	"
Various Registers and Indexes	1	"
Foreign documents	1	"
Bundle of Gazettes and old papers	5	"
Secretary of State's Papers	110	"
Dispatches submitted to Council	38	"
Procès Viger, seizure of 'La Minerve'	1	"
Rebel property confiscated, 1837-38	1	"
Drafts of Letters from Bathurst (1818)	1	"
Drafts to Secretary of State from Governor of L. C.	1	"
Militia Commissions signed by Durham	1	"
Total	1,289	

PRIVY COUNCIL PAPERS, UPPER CANADA.

These papers date from 1767 to 1841, and in addition there are the Orders in Council and Proceedings in Council from 1841 to 1867. They make in all about nine hundred portfolios, and naturally fall into four leading classes, viz., State Papers, Land Papers, Military Papers and Public Accounts.

STATE PAPERS.

Under this heading are the numbered state papers which have been arranged in regular order, alphabetically and chronologically, so as to correspond with the reference numbers in the State Books; rough Minutes of Council and rough Drafts of Reports to Council; Lieutenant-Governor's office correspondence; Executive Council office correspondence; Oaths of allegiance; Orders in Council; proceedings in Council; and printed documents, including proclamations, commissions, &c.

LAND PAPERS.

The most voluminous of the land papers are the petitions for grants of land and leases of land, which have been arranged according to date and in alphabetical order to correspond with the number references in the Land Books. When petitions are missing, the number of such are marked on the packages. Quite a number of the earlier petitions were not numbered. These have also been arranged according to date and alphabetically and a schedule made of each package indicating the names of the petitioners.

The other papers consist of Minutes of the District Land Boards and documents pertaining thereto; reports of commissioners appointed to investigate claims upon lands and secure titles to the rightful owners; Heir and Devisee Commission reports; official reports by deputy surveyors and others on the quality of soil and nature of the country in the various districts of the Provinces; Land Warrants; Land Rights; Land Certifi-

cates, as to character of applicants for grant of land; certificates *re* performance of settlement duties; land exchanges and surrenders; recommendations for land; bonds; correspondence to and from the Surveyor General's office. The land papers, especially the petitions for grants, are of particular interest. As it was necessary for the petitioners to state very fully the grounds on which they based their claims for recognition or favour from the government, they are rich in family history and also contain many references which throw important side-lights on other subjects.

MILITARY PAPERS.

They deal chiefly with the War of 1812-15, and consist of correspondence between military officers and the government, muster rolls, pay-lists, &c.

PUBLIC ACCOUNTS.

These cover a period of over fifty years from 1788 to the Union of 1841, and have been divided as far as possible under office headings.

MAPS AND PLANS.

Among the inclosures with the state and land papers were many maps and plans illustrating the subjects dealt with. These have been transferred to the map room so marked on both the maps or plans and on the documents to which they belong as to make easy reference from one to the other. Some of these maps are very old and of much interest.

When these papers were received at the Archives, many of them, especially those of early date, were very much torn and otherwise mutilated. In order to keep them intact they have been repaired and put in excellent condition.

CLASSIFICATION.

Following is a list of the papers as classified with the number of folios of each:—

STATE PAPERS.

Papers numbered to correspond with reference numbers in State Books, 1767-1841	46	vols.
Rough Minutes of Council and rough Drafts of Reports, 1790-1840	11	"
Executive Council Office—Correspondence, 1792-1840	6	"
Lieut.-Governor's Office—Correspondence, 1792-1840	9	"
Oaths of Allegiance, 1793-1815	1	"
Powers of Attorney, 1795-1844		
Fiats—Attorney General, 1835-1836		
Printed Documents, Proclamations, &c., 1789-1835	2	"
Orders in Council, 1841-1867	82	"
Proceedings in Council, 1841-1866	77	"

LAND PAPERS.

Petitions for grants of land or leases of land, 1788-1840	508	"
Land Boards of Lunenburg, Stormont and Glengarry, Matilda, Leeds and Grenville—Minutes and other papers, 1789-1804	2	"
Land Boards of Mecklenburg, Addington, Lennox, Hastings and Prince Edward, Midland, Adolphustown, Kingston and Newcastle—Minutes and other papers, 1789-1794	1	"
Land Boards of Nassau and Lincoln—Minutes and other papers, 1787-1794	1	"

Land Boards of Hesse, Kent and Essex—Minutes and other papers, 1765-1804	3	vols.
Land Certificates, 1783-1811	9	"
Land Warrants, 1796-1806	2	"
Certificates of character and of performance of settlement duties, 1781-1817	1	"
Acknowledgments, Affidavits, Bonds, Land Receipts, &c., 1788-1835	1	"
Land Exchanges, Surrenders, &c., 1788-1856	1	"
Recommendations for land, &c., 1789-1801	1	"
Vouchers and Bonds *re* land, 1794-1828	1	"
Land Commissions—Reports of Commissioners appointed to investigate claims upon land and secure titles to those entitled thereto:—		
Western and London Districts, 1798-1804	1	"
Home and Niagara Districts, 1799-1806	2	"
Newcastle and Gore Districts, 1803-1804	1	"
Midland District, 1797-1804	1	"
Johnstown District, 1800-1804	1	"
Eastern District, 1797-1804	1	"
Surveyor General's Office—Correspondence, Reports, &c., 1793-1840	10	"
Heir and Devisee Commissions—Reports, 1805-1834	2	"
Heir and Devisee Claims, 1841-1853	1	"
Official reports on quality of land in various sections of the province by deputy surveyors and others, 1826	2	"
St. Regis Indian Affairs, 1811-1840	1	"
Land Rights, 1838-1840	1	"
Deeds, &c., say	25	"
Register of Upper Canada Militia land grants for services during the War of 1812	1	"
Register of land certificates	1	"

MILITARY PAPERS.

Correspondence, 1811-1815	4	"
Muster Rolls, pay-lists, &c., 1812-1815	21	"

PUBLIC ACCOUNTS.

Crown Lands, 1788-1841	15	"
Clergy Reserves, 1825-1841	1	"
Receiver General's office, 1792-1840	16	"
Surveyor General's office, 1792-1841	6	"
Clerk of Assembly's office, 1794-1808	1	"
Attorney General's office, 1796-1808	1	"
Secretary of the Province, 1792-1840	4	"
Lieutenant Governor's office, 1792-1808	1	"
Clerk of the Council's office, 1792-1840	3	"
Miscellaneous, 1792-1841	21	"

RECAPITULATION.

State Papers	234	vols.
Land Papers	580	"
Military Papers	25	"
Public Accounts	69	"
Total	911	"

DURHAM PAPERS.

The office has received as a gift from the Earl of Durham a complete collection of the correspondence of Lord Durham in 1838, consisting of 18 volumes. An analytic index has been prepared.

BAGOT PAPERS.

During the current year Captain Joseeline Bagot has presented to the Archives the original correspondence of Governor Sir Charles Bagot. These papers were loaned to the Archives several years ago and copies were made for our use. The original correspondence, however, is a valuable addition to our manuscripts.

INDEX AND CLASSIFICATION.

During the year 19,237 index cards have been prepared, divided as follows:—

Index of names	51,033
Index of Series 'C'	5,943
Index of Series 'G'	1,500
Index of Series 'S'	22,865
Index of Library	10,377
Index of newspapers	3,519
	95,237

The cards have been typewritten, classified and distributed in alphabetical order. An index has also been prepared of documents relating to Assiniboia and to the surrenders of Indian lands.

During the year we have received 1,698 requests for information, not including verbal inquiries. Many of the inquiries involved lengthy research and transcription.

Before proceeding to make a definite classification of the manuscripts in the Archives it has been found desirable to prepare an inventory of each series. The inventories of series A, B, C, E, G, and of the registers from the Department of the Secretary of State and from the Privy Council are complete.

These inventories when printed will serve as a guide to the contents of the Archives and will greatly facilitate research.

A complete analysis of the reports of the Archives from 1872-1908, with an index, is now in the hands of the printer. A volume prepared by Mr. H. P. Biggar on the voyage of the Cabots is also now in the press.

We have acquired during the past year many objects of historic value, among them the Plan in Relief of Quebec made about the year 1800 by J. B. Duberger. This plan was deposited in Woolwich Arsenal in 1811 and was transferred to Canada by the authorities of the War Office.

From Lady Caron we have received four flags belonging to the Canadian militia in 1775. During the celebration in Quebec in 1908 Lord Lovat presented to the Archives the painting of Sir Benjamin West, P.R.A., representing the death of General Simon Fraser at Bræmus Heights, near Saratoga, on the 7th of October, 1777. This canvas is of considerable value and is much appreciated by visitors to the Archives. On the same occasion His Royal Highness the Prince of Wales presented to Canada the chair used by General Wolfe during the campaign of 1759. From the Misses Tupper, of Guernsey, we have received the coat worn by General Brock at the battle of Queenstown Heights.

ENGRAVINGS.

The collection of prints and engravings in the Archives is undoubtedly the most complete in America. Important additions have been made this year. The publication of a catalogue as a guide to visitors is desirable.

SECTION OF MAPS AND PLANS.

There are 6,000 maps in this section. A temporary catalogue has been prepared for publication. Several important maps have been acquired during the past year, including the following:—

Copies of five plans made by Catalogne.

1709 par les ordres de Monseigneur Le Comte de Ponchartrain Commandeur des Carte du gouvernement de Québec levée en l'année Ordres du Roy Ministre et Secrétaire Destat par le Sr. Catalogne Lieutenant des Troupes et Dressée par jean Bte Decoüagne.

Suitte du Gouvernement de Quebec qui Comprent et dessandant le Fleuve St Laurent depuis le Cap Tourmente jusqu'au Cap aux Oyes levée en 1709, par les ordres de Monseigneur Le Comte de Ponchartrain Commandeur des Ordres du Roy Ministre et Secretaire Destat par Le Sr Catalogne Lieutenant des Troupes et Dressée par Decouagne.

Suitte du Gouvernement de Quebec qui comprent en dessendant Le Fleuve Saint Laurent Depuis la Riviere Duchesne jusqu'au celle du Cas Rouge levée en 1709 par les ordres de Monseigneur Le Comte de Ponchartrain Commandeur des Ordres du Roy Ministre et Secretaire Destat par Le Sr Catalogne Lieutenant des Troupes et Dressée par jean Baptiste Decouagne.

Carte du Gouvernement des Trois Rivieres qui comprent en descendant Le Fleuve St Laurent depuis La Sortie du Lac St Pierre jusqu'à Ste Anne. Levée en 1709 par les ordres de Monseigneur le Comte de Ponchartrain, Commandeur des ordres du Roy Ministre et Secretaire destat par le Sr Catalogne Lieutenant des Troupes et dressée par jean Baptiste Decouagne.

Suitte du Gouvernement des Trois Rivieres qui comprent en descendant Le Fleuve St Laurent depuis les Isles de Richelieu jusqu'à la Sortie du Lac St. Pierre Levée en 1709 par Les ordres de Monseigneur le Comte de Ponchartrain Commandeur des ordres du Roy Ministre et Secretaire destat par Le Sr Catalogne, Lieutenant des Troupes et dressée par jean Baptiste Decouagne.

Carte Reduite du Golphe St Laurent, Contenant l'Isle de Terre Neuve et Partie de la Coste des Esquimaux l'Isle Royale, l'Isle St. Jean et celle d'Anticosti &c. Dressée au Depost des Cartes Plans et Journaux de la Marine Pour les services des Vaisseaux du Roi, Par Ordre de M. Rouillé Ch. Comte de Jouy &c. Ministre et Secretaire d'Etat ayant le Departement de la Marine MDCCLIV.

Map of Part of Canada, from Bay de la Val and Island of Barnaby in the River St. Lawrence to the Lakes Huron and Erie. (This map is a reduction from one compiled in the Surveyor General's Office, dated at Quebec, 1st October, 1790, Sgd. Samuel Holland, Surveyor General. John Collins, D.S.G. Endorsed Canada Case 37 No. 48 1790.)

Canada 45. 2n Part of His Majesty's Province of Quebec, from Montreal Westward. Part of the Ottawa River, the River Iroquois, as far as Kingston, the South Shore and Part of the North Shore of Lake Erie, Detroit River and part of Lake St. Clair, &c., &c. Finished 16 March, 1790.

A chart showing relative portion of the British Islands and British America . . . . to accompany Report on the projected Intercolonial Railway, by Sandford Fleming, C.E.

Map of the proposed Postal Route from British America to the West Indies and of the Existing Inter-Colonial Mail Lines. &c.. 1866.

Government Map of part of the Huron and Ottawa Territory. &c.. Thomas Devine. F.R.G.S.. 1866.

A Survey of Lake Ontario. done by H. Laforce of the Naval Department. & Lewis Kotté. Assistant Engineer The North Shore in 1783, and the East and South Shores in 1789 by Order of His Excellency The Rt. Houble Lord Dorchester. Governor and Commander in Chief. &c., &c. Copied from the Original Survey in the Drawing Room of the Engineers Department at Quebec by Wm. Hall. Draughtsman. Examined Gother Mann. Captn. Commandg. Rl. Engrs. Endorsed: Referred to by Lord Dorchester in his letter No. of the (The above is, as far as the map is concerned, a duplicate of Q.S. 25. In the latter the title is in the centre, instead of the upper left hand corner, and it bears in the right hand corner, at the bottom, the words, 'Enclosed in Lord Dorchester's Letter No. 58, Quebec, 24th October, 1790, Vol. 47.')

Also 'A Survey of Lake Ontario done by H. Laforce of the Naval Department' Lewis Kotté Assistant Engineer in 1783 and 1789. (Formerly Case 42, No. 21.) Key Map. Copied from Original in Colonial Office Library, London. Map No. 40 by J. H. Bigby.

Route of the Canadian Couriers from Montreal to Skenesborough 1788.

A Plan of the River St. John, in the Province of New Brunswick, with the Post Route or communication by that River from the City of St. John on the Bay of Fundy to the River Saint Lawrence. Copied from a plan, compiled from actual Survey, by the Surveyor General of the said Province by Isaac Nelden, Surveyor 1792.

Map of Nova Scotia, showing Post Routes (Duplicate of M.S. 155).

Sketch of the Bay of Fundy. 1792.

Sketch of the Route from Fort Cumberland to Fredericton, D Campbell, Mil. Secy, about 1799.

Plan of the New Settlements from Point à Bodet to Niagara: W. Chewett, D.P.S. 1789.

Also 1 Book intituled:—'The American Military Pocket Atlas; Being an Approved Collection of Correct Maps, Both General and particular of The British Colonies, especially those which now are or probably may be, The Theatre of War; Taken principally from actual Surveys and judicious Observations of Engineers De Brahen and Romane; Cook Jackson and Collet; Maj. Holland and other officers. Employed in His Majesty's Fleet and Armies.—London; Printed for R. Sayer and J. Bennett Map & Print sellers No. 53 Fleet Street.'

A plan entitled: 'Southwold and part of Westminster—Showing the situation of the roads through Southwold and the Connection formed by the Road thro' Westminster. Scale forty chains to an inch. Signed Mahlon Burwell, Deputy Surveyor.

Copy: Survey: Gen: Office. 20 April 1812. Thos Ridout, Survey Genl. 12th Nov. 1811.

During the year 1,260 maps have been mounted, repaired and mended.

SESSIONAL PAPER No. 15

INVENTORY of the Manuscript Books, Portfolios, Registers and Indexes actually on the Shelves in the Stack Room.

Series.	Contents.	No. of Volumes.
A.	Bouchette Collection	28
B.	Haldimand Collection	247
C.	Military Correspondence	1,466
D.	Durham Collection	21
E.	Executive Council Papers	1,839
F.	Documents copied in France	467
F.	Department of Finance	24
G.	Despatches, &c., from the Imp. Secretary's Office	175
G.G.S.	Papers Recd. from the Gov. Secy. Office	107
I.	Records from Indian Dept.	11
	" " Indn. Dept. Original Books	
M.	Miscellaneous documents and Correspondence	1,715
M.D.	Papers from Dept. of Militia and Defence	447
Q.	Colonial Office Records concerning Canada, L.C., & U.C.	96
S.	Documents and Books from the Dept. of the Secy. of State and Miscellaneous	3,776
	Correspondence of the Archivist Office.	
	Letters received 25	
	" Sent 25	
		50
	Total	11,704

Library.

New acquisitions.—[illegible] volumes have been added to the Library during the year.

I have the honour to be, sir,

Your obedient servant,

ARTHUR G. DOUGHTY,

Dominion Archivist.

OTTAWA, July, 1909.

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APPENDIX TO THE REPORT OF THE MINISTER OF AGRICULTURE

REPORT

OF THE

DAIRY AND COLD STORAGE COMMISSIONER

FOR THE

Year ending March 31

1909

Introduction.

Part I.—The Dairy Division.

Part II.—Report of the Assistant Dairy Commissioner.

Part III.—The Extension of Markets Division.

Part IV.—The Fruit Division.

Part V.—The Cold Storage Division.

PRINTED BY ORDER OF PARLIAMENT

OTTAWA

PRINTED BY C. H. PARMELEE PRINTER TO THE KING'S MOST EXCELLENT MAJESTY

1909

[No. 15a—1910.]

APPENDIX

TO THE

REPORT OF THE MINISTER OF AGRICULTURE

BEING THE

REPORT OF THE DAIRY AND COLD STORAGE COMMISSIONER.

OTTAWA, March 31, 1909.

To the Honourable,
The Minister of Agriculture,

SIR,—I have the honour to submit my report as Dairy and Cold Storage Commissioner in your department, for the year ended March 31, 1909.

The report is presented in five parts as follows:—

Part I. Dairying.
Part II. Report of the Assistant Dairy Commissioner.
Part III. Extension of Markets.
Part IV. Fruit.
Part V. Cold Storage.

The Dairy Division.—I would draw your attention to the results of the experiments in the handling and care of milk for cheese making, which were carried out during the summer of 1908. I have to acknowledge the careful work of Mr. Geo. H. Barr, chief officer of the Dairy Division, who personally took charge of these experiments, and who has prepared the report thereon, which appears in the following pages. In presenting the results of these experiments to the dairymen at public meetings during the present winter, Mr. Barr has made very effective use of lantern slides. This method of disseminating information has been found so helpful that it is proposed to make considerable use of it in the future.

The records of the cow testing work are again published in some detail. The interest in this important movement continues to grow. We hope to extend the scope of the work during the coming season by encouraging owners of herds to keep a record of the feed consumed by the individual cows, or at least a record of the average cost of feeding the herd.

The Assistant Dairy Commissioner.—Mr. J. C. Chapais, who has filled this position since the dairying service was inaugurated in 1890, resides at St. Denis (en bas), Quebec. A reference to his report will indicate the nature of the work which is assigned to him. Mr. Chapais has a very intimate knowledge of the province of Quebec and especially of the French speaking sections. His services as a lecturer on dairying, fruit growing and other agricultural topics are in constant demand.

The Extension of Markets Division.—The inspection of the iced car services and the cargo inspection carried on at Canadian and United Kingdom ports, are the chief lines of work assigned to this division of the branch. The chief officer is Mr. W. W. Moore, who receives the reports of the various inspectors. We have been able to make such use of the information which these reports contain as to effect much improvement in the transportation of all kinds of perishable food products. The details given in Part III. should be of interest to manufacturers of cheese and butter, fruit growers, exporters of and dealers in these and similar products.

The Fruit Division.—The Dominion fruit inspectors are under the supervision of this division and they report through the chief officer, Mr. A. McNeill. Part IV. of this report, which refers to the Fruit Division, gives some details of the work of inspection and the convictions for violations of the law governing the marking and grading of fruit. The effect of the amendments to the law which were passed during last session of parliament is referred to. The Fruit Crop Report issued monthly during the summer months entails considerable work and constant pushing to secure prompt publication. The fruit inspectors have been employed during the slack season attending orchard meetings and fruit institutes. The demand for assistance of this kind is much keener than it formerly was. The farmers in many districts where fruit growing has been a mere 'side line' are beginning to realize the possibilities which lie beyond careful orchard work.

The Cold Storage Division.—In Part V., which covers the cold storage work of this branch, particulars are given of the bonuses for creamery cold storages and the various iced car services arranged for with the several railway companies.

The arrangement made, with your authority, for the reservation of cold storage chambers on certain steamships for the carriage of fruit only, proved satisfactory to shippers. Considerable impetus was given to the shipment of early and tender fruits to Great Britain. The chambers were so well filled that only a small claim, amounting to $251.06 has been made on the Department of Agriculture under the guarantee which was given for the earnings of the space.

The work connected with the administration of 'The Cold Storage Act' has increased considerably during the year and there is more activity in the construction of cold storage warehouses.

THE ILLUSTRATIONS.

Some of the illustrations have been inserted in this report more as a matter of record than because they have any connection with the text. I have thought it fitting to reproduce a picture of the late Hon. Thomas Ballantyne, whose name was so prominently identified with Canadian factory dairying from its very inception to the time of his death.

Mr. Harvey Farrington, who died in 1878, is an interesting figure in the dairy history of this country, because of the fact that he started the first cheese factory in Canada near Norwich, in the County of Oxford, Ontario, in the year 1864.

The modelled butter at the Franco-British Exhibition is reproduced as a novelty which attracted much attention from visitors to the Canadian section of that exhibition.

The plates which show collections of fruit at exhibitions in Canada will give some idea of the great progress which has been made in the packing of apples during recent years.

The illustrations which accompany Mr. Barr's report on the experimental work in the care of milk, show very clearly the results of different treatment of the milk. These will be particularly interesting to cheesemakers.

ACKNOWLEDGMENTS.

I have pleasure in again acknowledging the loyal assistance which I have received from members of the staff in carrying on the work of the branch.

Messrs. McNeill, Moore and Barr have attended to the details of their respective divisions in a most conscientious, painstaking and careful manner. I cannot speak too highly of the useful work which they have done. I am indebted to them and to Mr. Whitley for valuable help in the preparation of this report. Mr. Whitley's work in connection with the records of the Cow Testing Associations is too well known to need any comment.

Mr. Jos. Burgess, of the outside staff, filled the position of acting official referee of butter and cheese during the season of 1908, and gave entire satisfaction in that capacity. He has also done excellent work in promoting the cool curing of cheese and the organization of cow testing associations during the winter months.

Mr. J. N. Lemieux, who also belongs to the outside staff, has rendered good service as refrigerator car inspector and in connection with our campaign in favour of cool cheese curing and cow testing.

Mr. J. G. Bouchard, creamery cold storage inspector, and Mr. I. Trudel, supervisor of cow testing in Quebec, both deserve favourable mention.

Mr. Harvey Mitchell, who represents the Dairy Division in the Maritime Provinces, joined the service during the year and he brings to bear on his work a long experience in dairying and is well equipped to carry on the work in that part of Canada.

Mr. D. M. Macpherson, Inspector of Dairy Products, has been active during the year in enforcing the dairy laws. Fortunately, these laws are well observed in Canada.

I wish also to acknowledge the assistance which I have received from Mr. F. T. Shutt, Chemist, Experimental Farms, in connection with questions of a chemical nature.

This branch is much indebted to the Department of Inland Revenue for co-operation in the enforcement of the dairy laws.

I have the honour to be, sir,

Your obedient servant,

J. A. RUDDICK,

Commissioner.

REPORT

OF THE

DAIRY AND COLD STORAGE COMMISSIONER

FOR THE

FISCAL YEAR ENDING MARCH 31,

1909.

PART I—DAIRYING.

CONTENTS.

Addresses at Dairy Conventions—Condensed Milk—Canadian Dairy Produce at Franco-British Exhibition—Report of Acting Official Referee for Butter and Cheese—Outlook for Canadian Dairying—Aeration of Milk for Cheesemaking—Statistics of the Dairy Trade—In Memoriam—Cow Testing Associations—Dairy Records.

PART I—DAIRYING.

ADDRESSES AT DAIRY CONVENTIONS.

The following addresses, delivered before the Dairymen's Associations of Ontario, deal with questions of general interest to all Canadian dairymen. Although these addresses have already received some publicity through the press and in the reports of the associations, some of the questions touched upon are believed to be of sufficient importance to warrant wide circulation and even repetition.

(Dairymen's Association of Eastern Ontario,
Prescott, January 7, 1909.)

THE DAIRY SITUATION IN EASTERN ONTARIO.

By J. A. Ruddick, Dairy and Cold Storage Commissioner.

It is now twenty-six years since I first came into close touch with the dairy industry of Eastern Ontario, as Superintendent of the Allengrove combination of cheese factories, in the counties of Glengarry, Stormont and Prescott. A large number of the factories in that part of the country were started in the eighties, so that my connection goes back to the early days of the industry, and it is quite natural that I should have watched the development of this section with particular interest. In the spring of the year 1889, I quit the manufacturing end of the business to take up educational work, at the invitation of this association, for it was in that year that Mr. Publow and I were appointed instructors for that part of Ontario lying east of Kingston, my particular territory being all east of the Brockville and Ottawa Railway line. For two years I covered the whole of this large district, but it must be obvious to any one who knows the country that my efforts were necessarily spread rather thinly where so much ground had to be gone over. Since joining the Dominion service in 1891, I have come into contact with other phases of the industry, and more particularly with its commercial side and the problems connected with storage and transportation. I have had exceptional opportunities, through access to literature, travel and personal contact with experts from all over the world, for acquiring information relating to the dairy industry in its various aspects, both productive and commercial. I make this rather personal reference to establish my claim, as it were, to speak with some authority on the dairy situation in Eastern Ontario, with particular reference to the extreme easterly portion of it.

I shall confine my remarks to the cheesemaking branch of the industry, not because the buttermaking branch is of no importance to those engaged in the manufacture of cheese, but because the inclusion of both branches would make the subject too large for this paper.

THREE DISTRICTS IN EASTERN ONTARIO.

Eastern Ontario, viewed from the standpoint of cheese production, divides naturally into three main districts, each with certain features which distinguish it from the others, and which for the present purpose may be designated as the Central Ontario, Brockville and eastern districts. The Central Ontario district, which includes Prince Edward, Hastings and Peterborough counties, and of which the old Belleville district was the beginning and is yet a kind of natural centre, was the first part of Eastern

Ontario to win prominence in the cheesemaking industry. The cheese from this district early acquired a good reputation on the British market and the Belleville district was recognized as leading Eastern Ontario twenty-five or thirty years ago.

The factory system was started near Brockville about the same time as it was in the Belleville district, but the development was somewhat slower. The limits of the Brockville section have never been very clearly defined. It is said that at times the boundaries have been stretched to take in a good part of Eastern Ontario. It has even been hinted that portions of the province of Quebec have been included, but we are not concerned with that phase of the question at present.

The third or eastern district embraces the territory included in the Ottawa Valley and the counties of Glengarry, Stormont and probably Dundas, or, in other words, the country lying north and east of the Brockville section proper. This was the last part of Ontario to engage in dairying extensively, and probably the most notable feature of the development of the industry in these counties was the organization of large combinations of factories under one management. The Allengrove combination of factories, now broken up, was the largest ever known in the history of Cheddar cheesemaking. That combination, along with several others, at one time practically controlled the manufacture of cheese in these counties. It is not unreasonable to suppose that the combination plan of organizing the factory end of the cheese business has had some influence on the progress of the industry in a territory where it was so generally followed. The system has many advantages, especially where conditions tend towards small factories. It also has some disadvantages and one is that the patrons and the management are not brought into close contact with each other, with the result that the patrons do not learn to take the same lively interest in the business as they do where the co-operative or single proprietary factory systems prevail. In one respect the pioneer factory owners of the eastern district, although they are deserving of the greatest credit for their early enterprise, made a serious error in adopting a low standard for their buildings and equipment. This gave the section a bad start, from which it has never recovered, for we still find in the extreme eastern counties the poorest buildings and the most unsatisfactory conditions surrounding the manufacture of cheese which are to be found in any part of Ontario.

EXTENT OF THE CHEESEMAKING INDUSTRY.

It will be interesting at this point to consider the extent and distribution of the cheesemaking industry in Eastern Ontario. According to the returns of the Census and Statistics Office for 1907, the counties lying east of York and Simcoe, but not including these two, produced in that year 104,367,739 pounds of cheese, valued at nearly $11,000,000, or considerably over two-thirds of Ontario's total output. We find that the business of dairying is most extensively followed in the eastern group of counties, which, including Leeds and Carleton, are credited with over one-third of the total production of the cheese in Ontario. The exact figures for the counties of Leeds, Grenville, Dundas, Stormont, Glengarry, Prescott, Russell and Carleton are 49,404,287 pounds, valued at $5,760,555. The county of Dundas produces more milk per acre than any other county in Canada, the value of the cheese from that comparatively small county in 1907 being over one million dollars. No other section of Ontario is so largely devoted to dairying as that which comprises the counties in the extreme east. The farm revenues depend more on dairying in this district than they do in any other division of the province. In the counties bordering on Lake Ontario, fruit growing, the canning industries and beef raising divide the attention of the farmers to some extent, and in Western Ontario the diversity of farm industries is even more pronounced.

RELATIVE PROGRESS OF DISTRICTS.

Let me refer again to Central Ontario. I have already stated that this district was a leading one some years ago; but having attained that position, the dry rot of con-

tentment began to take effect and before many years the Belleville district was obliged to yield the banner to the Brockville section. I am not sure that my Belleville friends will admit this, but that is the way it looks to a disinterested observer. There is more to be said in this connection, however, because as soon as the dairymen of that district realized that they had lost the place of honour, although it took some years to convince them of the fact, they immediately set about putting their house in order, with what result we shall see as we proceed. The beginning of the cool curing movement found the district in a receptive mood, and this means of recovering their position has been adopted to such an extent that within the past five years a large number of the factories in the counties of Prince Edward, Hastings and Peterborough have been equipped with cool curing rooms. In this important reform the district, especially Prince Edward County, easily leads Eastern Ontario. Every cheese factory in the Township of Ameliasburg is now equipped with a cool curing room. I am informed that the one factory which did not adopt the improvement has closed its doors and that the milk will go to the others. All told, there are thirty cool curing rooms in the Central Ontario district. I would not have you think that I look upon cool curing as the whole thing in progressive cheesemaking; but I do look upon it as a very important factor in determining the reputation of the cheese of any particular district. I am only repeating common talk in the trade when I say that the Central Ontario district, especially the Picton section, has come rapidly to the front again since it adopted the cool curing system so generally.

Now let us see what has been doing meantime in the other districts. I find that there are only seven cool curing rooms east of Kingston, all of which may be credited to the Brockville section, because there is not a single one, as far as I know, in the eastern district.

I am afraid it is a case of history repeating itself, and that the dairymen of the Brockville section have, like their brethren of Belleville at an earlier period, already mentioned, been relying on past achievement rather than on present effort, and in consequence they have been standing still while other districts have been going ahead. I say this with all kindliness and without any intention of giving offence to my friends in this district. I ask them to bear in mind that I am quoting actual facts, not opinions, in support of this conclusion. I am not responsible for the facts.

PROGRESS OF COW TESTING WORK.

Another matter has attracted my attention in preparing this review of the dairy situation in Eastern Ontario, which I think is worth mentioning. Members of the convention are aware that the branch of the Department of Agriculture over which I have the honour to preside has for several years been encouraging the organization of cow testing associations for the purpose of studying the performance of individual cows. Many people think this movement is calculated to add more to the profits of dairying than any other scheme which has ever been proposed with that end in view. I need not go into details, because the subject has been ably presented by my assistant, Mr. Whitley. It will be sufficient to say that there are twenty of these associations in Eastern Ontario. Of this number fourteen are in the Central Ontario district, which leaves only six east of Kingston, although the same effort at organization has been made in all parts of the country. These two movements, the cool curing of cheese and the improvement of the dairy herds, strike to the root of profitable dairy farming, the one by increasing the yield per cow, the other by improving the quality of cheese and thus insuring a good demand at a higher level of prices. For these reasons they deserve the careful attention of all dairymen.

Now we come to a point which should be emphasized. I have tried to show you that these three districts of Eastern Ontario have been progressing along certain lines in inverse ratio to their dependence on the dairy industry.

Does it not seem remarkable that the farmers who derive the largest proportion of their revenue from dairying appear to be the ones who are giving the least study

to questions affecting their interests? I put it that way because it can be nothing but a lack of information which results in such backwardness as I have described. No intelligent man can have any doubt as to the value of the cool curing of cheese, or of the keeping of records of his dairy herd, once he is in possession of all the facts bearing on these questions.

Mr. Whitley has given you some facts concerning the testing of dairy cows, and I ask your indulgence while I give you some of the facts in regard to the cool curing of cheese. My opportunities for getting information on the subject have been many, and I state most positively, after comparing the results of hundreds of tests, that I have invariably found the cheese cured at 60 degrees and under to be better in flavour and texture than other cheese from the same vat, cured at higher temperatures. But I do not ask you to take my unsupported word for it. I refer you to the pages of my annual reports for opinions of cheese merchants in Great Britain; ask any honest buyer in this country; ask Mr. Publow, the chief instructor; ask any of the instructors whose territory includes cheese factories with cool curing rooms; ask the representatives of any of these factories, and be guided by what they say. I shall be glad to send any one a list of all the cheese factories in Ontario which are equipped with cool curing rooms. Here is what some of them say:—

Mr. J. A. Holgate, patron and salesman of the Foxboro factory, in a letter recently received from him, makes the following statement: 'I have tried to make a careful estimate of the matter and I am convinced that in the last two years, during which we have had a cool curing room, we have had at least $600 a year profit from cool curing, on an output of 200,000 pounds of cheese, besides the satisfaction of having an article of cheese that all the buyers want. Our factory cost us about $600 more with the cool curing room than it would have cost without the ice chamber.' That is to say, they were repaid for the outlay in one year.

Mr. G. A. Gillespie, of the Central Smith factory, writes: 'It is quite safe to say that they (the patrons) have realized $900 in three seasons from an outlay of about $400.'

Mr. J. R. Anderson, a patron of the Mountain View factory, says: 'I can honestly say that we are pleased with the cool curing of cheese here.'

Mr. T. E. Whattam, Dairy Instructor in Prince Edward County, writes: 'In talking with the factorymen who have cool curing rooms, I find them well pleased with the results they have had, and confident that there are better things in store in the future when the benefits of cool curing are better known by the trade as a whole. I wish to say there is no comparison in the quality of cheese cured in the ordinary way and those cured in the cool rooms. I believe cool curing has helped the industry in this district more than any other advanced step in dairying in late years.'

I could cite any number of similar statements. The gains mentioned are made up partly by saving of shrinkage and partly by increased price as compared with what would have been received for the same cheese had they been ordinary-cured.

I am well aware that cool-cured cheese do not receive the premium that they should over ordinary-cured, but I would like to point out that the value of cool curing is not to be measured wholly by the relative price at which the cheese sell. There are many advantages besides an advanced price for the cheese, all of which put extra money into the pockets of the milk producers. In the first place there is a saving of shrinkage, which is very considerable, amounting to about one per cent. In many cases there is a saving of cuts, because there are many cheese which pass without question when cool-cured, that would have developed undesirable flavours and other objectionable qualities if cured at ordinary temperatures. The patrons of factories with cool curing rooms receive more money for their milk than they would if the cheese were ordinary-cured.

Then I would remind the dairymen of Eastern Ontario that every pound of cheese they have sold during the past season brought a higher price, relatively, than it would have done if a certain number of the factories had not provided cool curing rooms and

thus raised the general average quality of all the cheese and increased the demand by encouraging consumption. I have not heard that any of the factories where the improvements have not been made, have objected to receiving this premium on the price of their cheese.

The cool curing movement has emphasized the importance of cool transit and has attracted attention to that end of the business. The result is that all Canadian summer cheese are now landed in Great Britain in cooler condition and milder in flavour than they formerly were, a circumstance which has materially helped to give tone to the market.

Now it must be admitted that the Belleville and Picton districts differ from the Brockville section in this respect, that the factories there are mostly owned by the farmers themselves, while in the Brockville and eastern district they are more largely proprietary. This is probably the reason why the Central Ontario factories as well as those in Western Ontario have been quicker to take hold of this question. But it is not a sufficient reason, for if it has paid the patrons of the co-operative factories, as shareholders in the companies, to incur the necessary expense, will it not pay the patrons of proprietary factories, who will derive all the benefit, to contribute in some manner to the cost of securing the improvements?

The owners of factories can hardly be expected to meet the whole expense out of the low rate for manufacturing which now prevails, in view of the fact that they will not receive any direct benefit from it.

Now, are the dairymen of the Brockville district going to repeat what they did some years ago when they wrested the supremacy from the old Belleville district, or are these two eastern sections to go on losing probably a quarter of a million a year through failure to take advantage of modern improvements, and at the same time endanger the future of a trade which is of so much importance to them? New Zealand is every year becoming more of a factor in the cheese trade, having doubled her output in two years. Now, note this point: the cheese from that country are all practically cool-cured, because the weather is never as hot there as it is here. This is a new kind of competition and it presents some features which should cause Canadians interested in the cheese industry to do some thinking. Bear in mind that New Zealand cheese arrive in Great Britain during the winter and spring months, or the period of non-production in Canada. If we continue to send cheese of indifferent quality, with heated flavours, &c., merchants in the old country will be disinclined to stock up with them for winter trade, but will wait and get a supply of the New Zealand cool-cured and thus encourage the production of more and more cheese in that country. New Zealand is not a large country, but it is large enough to produce an enormous quantity of dairy produce if there is sufficient encouragement. The output of cheese in New Zealand this year will be, roughly speaking, 400,000 boxes, quite enough to have a material influence as well as a sentimental effect on market conditions. I do not think the alarm which is felt in some quarters over New Zealand competition will be justified if those engaged in the cheese industry in this country make the most of their opportunities. Our safeguard is to make a superior article so as to get a firm position in the market, but to do so, we must adopt every reasonable means to that end. We should surely avail ourselves of a plan which ensures immediate returns for the outlay as well as security for the future.

Incidently I would remind the members of the convention that I am prepared to send plans and specifications for cool curing rooms, free of cost, to any one who applies for them. We will give every assistance in our power towards the building of new factories or in remodelling old ones.

CENTRAL WAREHOUSE FOR CHEESE.

There is another question, somewhat related to the cool curing of cheese, on which I have received some inquiries during the past year and which may be of some interest to this meeting. I refer to the proposal to erect central warehouses at points

in Eastern Ontario, where the cheese could be collected for the purpose of inspection and sale. It has not been made at all clear whether such proposed warehouses are intended to be cool cheese curing rooms or cold storage warehouses. Most probably the proposers have not been very clear on the point themselves. The distinction is a necessary one, however, because the two things are entirely different.

One thing is certain, and it is this: the benefits of cool curing cannot be secured with a central warehouse unless the cheese are delivered there every day, and that means extra expense as against the usual plan of delivering to the shipping point once a week, or when a sale is made.

Another point to note is that the government cold storage subsidy cannot be secured unless the warehouse is equipped with mechanical refrigeration, and it would be very poor business policy to incur the expense necessary to so equip a cheese storehouse in a locality where ice is available and where a temperature not below 50 degrees is required.

There may be certain localities where the central curing room idea, or a warehouse through which the cheese could pass for inspection and sale, would work out to advantage, but on the whole, the suggestion does not appeal to me as a very practical one.

It is a very convenient way to sell the cheese. We found it so when the government cool curing rooms were in operation, but the advantages are not worth the additional cost which is thus incurred in the marketing of the cheese, all of which must come out of the milk producer, and which will be greater than appears to be generally supposed.

It has been said that the cheese would be sold on their merits under such a plan and that there would be proper discrimination in price according to quality. It is a very regrettable feature of the cheese trade as well as of other trades, that the producer of a superior article does not always receive the premium which he should. It is generally admitted that nothing would so quickly bring about improvement in the quality of cheese as to have them sold strictly on their merits, but I fail to see why it should be assumed that this reform would be brought about through the medium of local warehouses. The same forces which now impel the buyer to pay a uniform price, and which influence the salesman to demand it, would be at work under those conditions just as they are under any other.

It seems to have escaped the attention of some people that the principal reason why cheese are bought without proper discrimination in quality is because the salesmen demand a uniform price. If John Jones sells his cheese for 12 cents, all the other factories in the neighbourhood insist on getting 12 cents also, regardless of quality. Every person knows that this is what happens at the cheese boards. It is what would happen in a warehouse if the cheese were being sold under the trier, because just as soon as a salesman found that he was not being paid the ruling price for his cheese he would withdraw and offer them through some other channel; so the buyer does business along the line of least resistance.

I have for some years thought that the best plan for selling Eastern Ontario and Quebec cheese would be to have a central receiving warehouse at Montreal, where the cheese could be officially graded and then sold by auction, without any recourse. That is to say, the price bid at the auction would be final. The official grading would relieve the buyer of the onus of discrimination, which appears to be the chief difficulty at present. This plan would not involve extra handling or expense, because the cheese would be going through the most direct channel. But there are many obstacles of a commercial nature in the way of giving effect to such a plan, and the disinclination on the part of the average salesman to accept a verdict which puts his cheese out of first grade, no matter how independent or reliable the official may be who passes judgment on them, would be a difficulty in the way of successful operation.

THE SELLING OF CHEESE.

There has been some discussion in Eastern Ontario recently about methods of selling cheese, and the question has been magnified to an extent out of all proportion to its importance compared with other matters affecting the industry. The result of this agitation, as far as it can be said to have had any result, has been to divert the attention of some dairymen from questions of much more real importance to them. The manner in which the agitation has been conducted has been harmful by creating ill-feeling between different classes or interests connected with the trade. If there are any wrong practices, and I shall not deny that there have been, they will not be put right by wholesale charges of dishonesty or mean insinuations and abuse of those who may offer contrary opinions. Abuse is not argument and it is always the resort of a man who has a weak case. I know the men who are included in the different divisions of the cheese trade, from patron to buyer, as well as any person, and I am bound to say that I have found one just as honest as the other. It will do no good to create unwarranted suspicion in the minds of those who have to deal with each other.

In regard to the selling of cheese, I would repeat again that there is only one thing of real importance, and that is to have an article of superior quality. All other considerations are insignificant in comparison. The factories which have earned a good reputation by turning out a superior article year after year never have any trouble. The competition for their cheese enables them to pick and choose as to whom they shall sell them to. Of course, ordinary business prudence demands that some care shall be exercised in dealing only with houses in good financial standing.

SALESMEN SHOULD BE COMPETENT.

It is important also that the business of selling the cheese should be put in the hands of competent men. There are a great many men acting as salesmen for cheese factories who have no special knowledge to qualify them for such a duty; men who do not know anything about the qualities of cheese or of proper business methods, and it is not surprising that they sometimes get the worst of the bargain. Salesmen of this kind are a positive barrier to progress and they have cost the patrons of cheese factories of this province a great deal of money, both directly and indirectly. When such a man offers inferior cheese for sale, he will not be convinced of the fact like a man who really knows something about cheese. He assumes that he is being imposed upon instead of finding out the cause of the defects and having it removed. Thus the evil is perpetuated and the losses go on. If the matter is in the hands of a capable man, he will find out where the trouble is and seek to have it remedied.

MIDDLEMEN NECESSARY.

I believe the middleman is a necessary factor in the successful handling of the Canadian dairy produce trade. In the marketing of cheese, its distribution to the different centres in Great Britain calls for special knowledge, because these different places demand cheese of widely different character. It is a well known fact that cheese which will give satisfaction in the Manchester market are not wanted in London. The same may be said of Glasgow, Liverpool and other points, all of which have their peculiar fancies. It is here, in dealing with these special requirements, that the training and experience of the middleman is useful in realizing full value for different kinds of cheese.

Then there is another very important consideration. Canadian cheese amounts to between 70 and 80 per cent of the total imported into Great Britain. The consumption of cheese goes on throughout the year, but the manufacture in Canada, as every one knows, does not extend over a period of more than about seven months. The result is that as the season advances the surplus of supply over demand gradually

increases. The middleman speculates with this and holds it until such time as it may be required for consumption. It must be very plain to any one that if all our cheese were forced on the English market, as it would be on a consignment basis, as soon as it is made, the market would be demoralized before the end of the season. It is safe to say that if every box of cheese made in Canada this year had been consigned to Great Britain within three or four weeks after it was made, cheese would now be selling for a very much lower price than it is. Without the middleman or exporter we would lose the advantage of the competition for the cheese, which often raises the price higher here than it is in England.

DAIRY INSTRUCTION.

Now, Mr. President, there are many other things which I might discuss, but this paper is already long enough. I cannot close, however, without mentioning one feature of the dairy situation in Eastern Ontario, concerning which there is good reason for congratulation. I refer to the work of dairy instruction. The dairy associations of Ontario are entitled to the credit of having inaugurated a scheme for dairy improvement when they first employed instructors to visit the factories, which has since been adopted in some measure by every important dairying country in the world. It was exactly thirty years ago this coming season that the western association employed the late Prof. L. B. Arnold, of the State of New York, to introduce his new method of cheesemaking, which was known as the 'sweet' curd system to distinguish it from the so-called 'acid' system then in vogue. Mr. J. B. Harris, of Antwerp, N.Y., was engaged by your association in 1881, and the two following seasons, to visit the factories in Eastern Ontario. After that, Canadian instructors were employed, and it should be a matter of pride to us all that it has never since been thought necessary to go outside of the province for dairy teachers, and what is even more complimentary, the United States, New Zealand, Australian and Scottish authorities have induced many of our best men to accept service in those countries. The dairy instructors never had a fair chance until they were made independent of the factories as they are at present. The value of the instructors' work has been increased enormously by the aggressiveness and fearlessness engendered of freedom. It is gratifying to find these men taking their places as leaders in their respective localities. The successful instructor must possess other qualities in addition to technical skill of a high order. He must be tactful, patient and persistent, as well as industrious. A blustering, grouching, fault-finding manner destroys the effectiveness of any man's skill in this kind of work, because the Canadian temperament calls for a leader, not a driver.

It has always appeared to me that there should be a little more organization in connection with the different instructional districts, but as long as the matter is under the energetic and capable supervision of Mr. Publow, we have an assurance that the work will be well done. As a last word, let me say that this scheme of dairy instruction should have the hearty support of every Ontario dairyman, for it has put millions of money into the pockets of the milk producers.

(Dairymen's Association of Western Ontario,
Brantford, January 14, 1909.)

A GENERAL SURVEY OF THE DAIRY INDUSTRY FROM A CANADIAN STANDPOINT.

By J. A. Ruddick, Dairy and Cold Storage Commissioner.

When considering a choice of subjects for an address at this convention, it occurred to me that 'A General Survey of the Dairy Industry from a Canadian Standpoint' should be of interest, in view of the important developments which are now taking place in various parts of the dairy world, some of which may have a very

The Hon. Thomas Ballantyne.

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Harvey Farrington, who started the first cheese factory in Canada, in Oxford County, Ont., in 1864.

decided influence on the future of the Canadian dairy industry. We must keep our eyes open to what is going on around us and study the march of progress in other countries if we would be fully prepared to face the competition which we are likely to meet in the world's markets. In these days of rapid and safe transportation the four corners of the earth are brought into direct contact, and distance and cost of carriage no longer stand as obstacles in the way of the free movement of dairy produce from one point to another in times of local scarcity or over supply. Any one who would have suggested sending Canadian butter to Australia or bringing it to Canada from New Zealand or Siberia, would have been considered mad not so very long ago; and yet, that is what has actually been done during the last year or two. Extended commercial organization is also a factor in promoting the trade in butter and cheese between different countries, and we have amongst us representatives of houses whose ramifications extend from that great centre of consumption, Great Britain, to every important field of production in the world.

One of the notable features of the dairy produce trade during the past ten years, has been the large increase in butter consumption in Great Britain and in Germany. A few years ago Germany was an exporter of butter to a large extent; but that is a thing of the past. The improved condition of the industrial classes in Germany enables many of the people to use butter, who a few years ago did not know the taste of it. This increased home demand has absorbed the whole production of the country and calls for a large importation from abroad. The annual importation of butter into Germany now amounts to something like 100,000,000 pounds, which comes principally from Denmark, Holland and Russia. If we are to take any note of competition or the absence of it, we must recognize that this German demand is of real interest to us, because, lacking that outlet, practically all the butter which now goes there would be dumped into England, with what result it is hard to say; but it certainly would not improve the tone of the market. It is true that our export of butter to England has grown so small as to cease to be of much importance in itself; but I look upon butter and cheese as so closely related that they should always be considered together. Conditions of production are such in many places, that an over production and reduced price of one article immediately result in an increased production of the other.

INTERNATIONAL TRADE IN BUTTER.

Looking over the field of international trade in butter, the first point to note is that the consumption of butter in Great Britain—which country is by far the largest importer of this product—has increased at a very rapid rate for some years past. The imports for the year ending June 30, 1908, exceeded those of 1899 by 81,753,520 pounds, and as the home production in Great Britain does not change much from year to year, this large increase may be attributed to increased consumption. As for the exports by countries, we are naturally attracted first to Denmark, with an annual export of about 200,000,000 pounds, and nearly double that of any other country. The story of Denmark's butter trade is so familar that it needs no more than passing mention, especially as there is no evidence to show that there will be much change in the volume of Danish exports in the immediate future. The Russian or Siberian export of butter is now easily second to Danish in volume, and it is growing rapidly; but I shall refer to it later on. Australia in times of plenty, that is to say when there is sufficient rain, ranks third in the list; but the supply of butter from the Commonwealth will always be a little uncertain because of weather conditions. For instance, in 1902, Australia exported only 7,777,971 pounds of butter owing to the prolonged drought; but such are the marvellous recuperative powers of the country that in 1904, after good rainfall, the quantity had risen to 64,788,542 pounds. Holland takes fourth place with a steady export of about 50,000,000 pounds a year. As the Dutch co-operative associations, when they build a new creamery, borrow the money

and arrange the repayments to cover a period of fifty years, it would seem to be a reasonable inference that they intend to keep right on making butter. History tells us that it takes strong influences to swerve the Dutch from a course which they have once decided upon.

New Zealand, Finland, France and Sweden each export between 30,000,000 and 40,000,000 pounds a year; but New Zealand is probably the only one of these countries which is likely to show an increase in the future. Nor is it probable that there will be much change in either direction in the older countries.

At one time we were told that Argentina was the coming country in the butter trade; but its arrival seems to have been delayed. As a matter of fact, there has been no increase in the shipments of Argentine butter since 1902, and those who know the country, while admitting its suitability for dairying, say that the present inhabitants will never become dairymen on a large scale.

THE SIBERIAN COMPETITION.

Possibly the most interesting, because it promises to be the most serious, competition which some countries will have to meet, comes from Siberia. The building of the Trans-Siberian Railway has opened up an enormous territory which is apparently better suited for live stock industries than for other lines of farming. Owing to the existence of numerous navigable waterways which cross the railway at right angles and act as feeders to it both from the north and from the south, the extent of country which has been given communication is many times greater than would ordinarily be served by a single line of rails.

The first butter was exported from Siberia in 1894, and the quantity was only 14,400 pounds. It is stated that the quantity exported in 1908 was about 135,000,000 pounds. The principal growth has been in quite recent years. The development of Siberia as a dairying country is due to the remarkable migration of peasants from European Russia. The *Pall Mall Gazette* of London, is my authority for the following figures: 'Up to the end of 1905, the average annual migration across the Urals was about 60,000 persons. In 1906, this number was increased to 180,000; in 1907, the total was nearly 500,000; while in the first three months of 1908, 70,000 families, or approximately 420,000 persons, settled in Siberia.' If you imagine the present settlement of the prairie provinces of Canada as progressing at two or three times the present rate, you will have some idea of what is going on in Siberia.

In one respect the Siberian competition is not as serious as it might be, for in spite of the skill of Danish buttermakers, who are largely employed, the quality of the great bulk of the product is only second grade, owing to the unsanitary conditions under which the milk is produced. The people are yet extremely poor, with primitive surroundings, and a high standard of cleanliness is not to be expected in such circumstances. On the other hand, these very conditions will permit the Siberian farmer to continue the production of butter at a rate which would be ruinous to Canadian or other English speaking farmers with their higher scale of living. Our safety lies in bringing to our dairy operations the advantages which a more advanced civilization gives us in producing a superior article, and increasing the flow of milk by improving our dairy herds.

INTERNATIONAL TRADE IN CHEESE.

Turning now to the cheese branch of the dairy industry, we are confronted with another set of conditions. In the first place, the total consumption of cheese in Great Britain, almost our sole market abroad, has not permanently increased in ten years, nor is there any evidence that it will do so in the future. Our chief hope for an increased outlet at present prices, apart from what may be gained by improved quality, seems to lie in the encouragement of a greater consumption in Canada, in which direction there are greater possibilities than are generally supposed. Canadians take some pride in the fact that they are by far the largest exporters of cheese in the

world. The country next in the list, which is Holland, has a little over half as much to her credit. Or, in other words, Canada will this year export about 170,000,000 pounds of cheese, while the Dutch exports are only 100,000,000. Moreover, only about one-third of Holland's trade is with England. Add to this fact that the Dutch cheese are of a different variety from ours, and go largely to markets for which our cheese are not suited, and it will be seen that the competition either directly or indirectly is not as keen as it would be if the cheese were of the same kind as ours.

Switzerland is the next largest cheese exporting country; but as only a very small percentage of the Swiss cheese reaches the British market and the whole of it is different in character from the Canadian, we need not concern ourselves very much with it at present. The Italian export, consisting largely of Gorgonzola cheese, follows next in order of quantity. Although the Italian output seems to be increasing somewhat, it does not, on account of its character, compete directly with Canadian. It would be a mistake, however, to assume that there is no competition between cheese of different varieties, or that one kind is not often substituted for another.

The United States, although still the greatest cheese producing country in the world, and at one time Canada's most formidable rival in the British market, has ceased to be a factor in the international trade in cheese, because practically the whole output is required for home consumption.

The English and Scotch cheese, consisting chiefly of Cheddar or allied varieties, though not exported, is for that very reason of great importance in the British market, especially as the quantity produced far exceeds the Canadian output or that of any other country except the United States. There are no accurate statistics of the production of cheese in Great Britain, but it is estimated to be at least 300,000,000 pounds a year.

NEW ZEALAND.

Last, but not least, we have to consider a country which is reaching out for a share of England's cheese trade with an aggressiveness, and with a measure of success, which should cause Canadian dairymen to do some thinking. I refer to New Zealand, our only direct competitor of any consequence, in the import trade of Great Britain. New Zealand cheese are of the same type as ours, and the cheesemakers receive their instructions from a Canadian teacher. Previous to 1906 the production of cheese in New Zealand had not shown any permanent increase in ten years; but since that year there has been a remarkable expansion, and the present season's output, which is expected to be at least 400,000 boxes, or probably 35,000,000 pounds, will be about three times as large as that of 1906. This sudden growth is due largely to the fact that the combined factories have turned their milk into cheese instead of butter, owing to the higher returns from cheesemaking. Should the relative price of butter and cheese be reversed, the production of cheese will be almost sure to fall back nearly to its old level; but if the market continues as it has been lately, there will likely be a considerable increase in the quantity of cheese manufactured for some time to come. It is hard to say how much it may increase, because the country is capable of producing an enormous quantity of dairy produce, and large areas are not well adapted for anything else. Fortunately for us, dairying is not popular as an occupation among the settlers; they prefer sheep farming. Dairying is, however, the most profitable branch of farming on small holdings in New Zealand.

While the quantity of New Zealand cheese is not yet large enough to prove a very serious menace in view of our decreased shipments, there are some features of this competition which should command our attention. In the first place the New Zealand cheese factories are larger than ours, some of them making as many as 140 cheese a day. This tends to give the output a uniformity of character and quality which cannot be so easily attained in small factories. In the second place the cheese are all practically cold-cured, because the weather is never as hot as it is in Canada. Owing to the distance from the market, the cheese are at least two months old before

they reach the consumer, and as they have to cross the equator in transit, they must be carried in cool storage which ensures their delivery in cool condition. Moreover, as they land in England only during cool weather, they do not suffer from exposure to heat after reaching the market, as ours sometimes do. It is generally understood, I suppose, that the New Zealand season is exactly opposite ours. Their summer is our winter. The season there is longer than it is in Canada, owing to the absence of any real winter, so that the first of the season's make arrives about the beginning of December, continuing all through the winter until the month of June.

Now, here is where the most serious part of the competition comes in. The supply of Canadian cheese during the manufacturing season exceeds the demand, as every one knows, and British merchants stock up with the surplus against the period of non-production. When Canadian cheese was practically the only cheese of its kind being imported, they were obliged to do this or go without. But with the New Zealand supply in view, the merchant is not so keen in placing his orders, especially if the quality of the Canadian cheese does not suit his fancy, or if he thinks the price is too high. In this way the New Zealand cheese have a sentimental as well as a material effect on the market, out of proportion to the quantity offered.

Drawing on my personal knowledge of conditions in New Zealand as well as in Canada, I would say that the alarm expressed in some quarters concerning the New Zealand competition may yet be justified if Canadians do not make the best use of their opportunities. First and always I would urge every factory to provide for the cool curing of their cheese. The presence on the market of so many cool-cured cheese from New Zealand, will emphasize the superiority of mild flavoured cheese. I cannot go into the question of cool curing now, nor would it appear to be necessary. There are a sufficient number of cool curing rooms in Canada to furnish evidence of the advantages to be derived from them, and if any one wishes to know the experience of those who have them, he need only make inquiries. I would like to impress this point, however: when estimating the benefit to be derived from cool curing, do not forget to take into account the important effect it will have on the future of the industry.

To finish this general or foreign part of our survey of the dairy industry, I submit the following tables of exports of butter and cheese from various countries, compiled in part from the Year Book of the United States Department of Agriculture, and partly from other sources.

TABLE I—INTERNATIONAL TRADE IN BUTTER, 1906.

Country.	Exports.	Imports.
	Lbs.	Lbs.
Denmark	175,043,639	13,049,168
Russia (Siberia)	114,369,238	577,805
Australia	75,765,536	70,143
Holland	56,401,861	563,865
France	39,307,325	11,402,808
New Zealand	35,865,200	
Sweden	35,713,817	1,316,117
Finland	33,192,114	
Canada	18,243,740	
United States	12,544,777	
Italy	10,746,430	
Argentina	9,712,076	
Austria-Hungary	7,740,648	
Belgium	3,704,232	11,128,520
Norway	3,281,403	
Brazil	.....	5,344,412
South Africa	.....	11,555,202
Germany	.....	80,896,179
Great Britain	.....	477,092,448
Other countries	4,677,661	
	636,311,697	612,996,657

TABLE II—INTERNATIONAL TRADE IN CHEESE.

EXPORTS, 1906.

Country.	Variety of Cheese.	Pounds.
Canada	Cheddar	200,824,470
Holland	Edam & Gouda	104,742,665
Switzerland	Gruyere	61,935,107
Italy	Gorgonzola	42,314,633
France	Soft varieties	22,058,487
United States	Cheddar	17,285,230
New Zealand	"	14,695,072
Bulgaria	Various	6,606,741
Germany	"	2,629,673
Russia	"	1,733,414
Other countries	"	9,111,773
		483,937,265

IMPORTS, 1906.

Country.	Pounds.
Argentina	7,304,669
Australia	306,951
Austria-Hungary	8,935,904
Belgium	30,333,690
Brazil	3,784,774
South Africa	3,228,593
Cuba	4,078,517
Denmark	1,782,437
Egypt	10,064,909
France	44,714,972
Germany	48,187,525
Italy	10,398,761
Spain	4,255,835
Switzerland	5,511,979
Great Britain	289,371,824
United States	33,848,766
Total	506,138,196

These figures will serve as a comparison. I have not been able to get complete statistics of years later than 1906. As far as cheese is concerned, the only countries in which there has been any material change in 1907 and 1908 are Canada, United States and New Zealand, the two former showing a decrease and the latter an increase, as we have already indicated. With respect to butter, Siberian exports have been largely increased. Australian increased in 1907, but fell off again in 1908. New Zealand and Canadian exports have also shown small increases. Of course it will be understood that the exports of a country do not bear any regular relation to production. That depends on home consumption, as we have seen in the case of Great Britain and of the United States. I have given you the export figures, because those of production are not available and would not be so interesting or instructive if they were.

THE DAIRY INDUSTRY IN CANADA.

Having completed this somewhat rapid survey of the international trade in butter and cheese, I ask your attention now for a moment to some aspects of the industry in Canada.

Our exports of butter reached the maximum of 34,128,944 pounds in 1903, and then declined to less than 4,000,000 pounds in 1907. The figures for 1908 will show an increase of probably one and a half million pounds, over 1907.

Canadian cheese exports reached the maximum of 233,980,716 pounds in 1904, and they also have declined. It is estimated that the exports for the season of 1908 will not be over 170,000,000 pounds, making a total shrinkage of nearly 800,000 boxes of eighty pounds each since 1904.

CAUSE OF DECLINE IN EXPORTS.

This rather startling decrease in the export of Canadian dairy produce has been looked upon in some quarters as an actual decline of the industry in this country. I do not think that view of the matter is justified if we consider all the facts which bear on the question. In the first place the seasons of 1907 and 1908 were extremely unfavourable for the production of milk in the prineipal dairying districts, while on the other hand the seasons of 1903 and 1904 were quite the reverse. The increase in the condensed milk industry has also had an appreciable effect on cheese and butter production, but the main reason for the decrease in the exports is to be found in the increased home consumption.

INCREASED HOME CONSUMPTION.

As it appears to me, there are three factors which have contributed to this increase. First, there is the growth of population. There are probably 1,000,000 more people in Canada at the present moment than there were in 1904. I should say that that number of people would consume at least 20,000,000 pounds of butter, and milk and cheese equal to another ten million pounds. Then there is the increased purchasing power of the people as a whole, which permits them to spread the butter more thickly and to indulge to a greater extent in the use of cream, ice cream and other milk products. Last, but probably not least, the improvement in the quality of butter has encouraged a tremendous increase in its general consumption. Taking all three factors together, I think it is safe to say the falling off in exports is fully equalled by the increase in home consumption.

HOME TRADE IMPORTANT.

I see no reason whatever to deplore the fact of our decreased exports. On the contrary, we have every reason to congratulate ourselves that we have found another outlet in the enlarged home market. It must be apparent to any one who has given the matter a thought, that if we had continued to ship as much cheese of the same quality to Great Britain as we did in 1904, the market would have been overdone and more or less demoralized. In any case, the present level of prices could hardly have been maintained. The lesson for us is that we should give more attention to our home trade, which has always been of more importance than we have generally recognized. I have only to state that we consume in Canada in the shape of milk, butter, cheese and condensed milk over two-thirds of our total dairy production, to prove how important it is, and in doing so, I submit a fact which has been generally overlooked. We can, I believe, increase the consumption of cheese in Canada to a large extent by giving it to the people in convenient form, of the right character and quality and properly matured. There is an enormous demand for cheese in Canada which is not satisfied.

By improving the quality and lessening the proportion of heated, strong flavoured cheese, the consumption would be increased in Great Britain also.

I do not want any one to think that I regard the old country market as unable to take a larger quantity of our butter and cheese than it did last year. I believe there might be a much larger share of Great Britain's requirements in dairy produce

supplied by Canada if care were taken to send goods of the right quality, and the kind which will encourage consumption. We have this satisfaction, that the old country will give us the preference over continental countries, everything else being equal.

There is no reason why there should not be a large expansion of the dairy industry in every province of Canada as well as in Ontario. I hope the movement for the improvement of dairy herds will help in that direction, even if new territory is not opened up.

Perhaps one of the best arguments that can be used in favour of dairying as a profitable branch of farming is to point to those districts or counties where it has been most extensively followed, for there you will find the most prosperous farming communities.

CONDENSED MILK.

There has been some growth of the condensed milk industry in Canada during the past two years.

The following factories are now in operation:—

The Truro Condensed Milk Co., Truro, N.S.
The Canada Milk Condensing Co., Antigonish, N.S.
The St. Charles Condensing Co., Ingersoll, Ont.
Canadian Milk Products, (Milk Powder), Brownsville Ont.
Condensed Milk Co., Limited., Charlottetown, P.E.I.
The Truro Condensed Milk Co., Huntingdon, Que.
The Sweet Milk Condensing Co., St. Lin, Que.
The Canadian Condensing Co., Limited, Chesterville, Ont.
The Aylmer Condensed Milk Co., Aylmer, Ont.
The Canadian Condensed Milk Co., Hamilton, Ont.
Borden's Condensed Milk Co., Tillsonburg, Ont.

SOME FIGURES OF INTERNATIONAL TRADE IN CONDENSED MILK.

	1904.	1905.	1906.	1907	1908.
	$	$	$	$	$
Canada—					
Imports	8,895	6,261	7,816	26,225	124,342
Exports	189,771	203,149	83,099	15,583	79,353
United States—					
Imports	21,040	18,596	5,634	.....	.....
Exports	1,849,513	1,953,512	1,889,795	2,548,435	1,997,689
United Kingdom—					
Imports	7,951,003	7,807,572	7,697,813	7,863,339	7,823,282
Exports, Home Manufacture	2,955,214	2,881,508	3,236,284	3,462,835	*
Exports, Foreign and Colonial Manufacture	908,863	969,258	767,792	375,505	403,265
Exports, Total	3,864,077	3,850,766	4,004,076	3,838,340	.....
Switzerland—					
Exports	5,843,400	5,718,000	5,566,600	6,288,995	.....

* No returns.

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VALUE of Condensed Milk Exported from Switzerland to Different Countries during the year 1907.

Africa, South	$ 16,914	Greece	11,353
Africa, Other	86,684	Holland	2,270
Algeria and Tunisia	58,343	Italy	18,727
Argentine Republic	27,062	Japan	136,503
Austria-Hungary	3,387	Mexico	36,867
Australia	93,159	Norway	151
Belgium	13,763	Persia and Afghanistan	14
Brazil	493,567	Philippines	46,106
British India	677,662	Portugal	3,931
Bulgaria and Servia	60	Russia	6,593
Canada	1,594	Siam and Indo-China	116,146
Central American States	283,265	South America, other	40,043
Chili	74,158	Spain	252,839
China	23,206	Turkey in Asia	5,081
Colombia	2,241	Turkey in Europe	9,615
Dutch East Indies	250,036	United States	3,981
Egypt	32,145	Other Countries	62,038
France	82,738		
Germany	21,168	Total Exports	$6,288,995
Great Britain	3,295,030		

The United States is a large producer of condensed milk. The value of the total output in that country in 1905 (last census of manufactures) was $20,149,282.

A large quantity is manufactured in Ireland and in various continental countries of which Switzerland is the chief producer.

The value of the annual output in Canada is now well over $1,000,000.

CANADIAN DAIRY PRODUCE AT THE FRANCO-BRITISH EXHIBITION, LONDON.

Canadian dairymen will be interested in the reproductions of the 'Butter Statuary' (Plate XX) which formed such an attractive feature of the Canadian section of the Franco-British Exhibition. The success which attended the exhibition of the 'Mammoth Cheese' from Canada (weight 22,000 pounds) at the Chicago World's Fair in 1893 was repeated in a somewhat different way. The following reference to the exhibit is taken from *The Daily Telegraph*, London, of June 18, 1908:—

SCULPTURE IN BUTTER.

'An exhibit sure to attract much attention is that which is intended to depict the extent and value of Canada's output of dairy produce, and of that exhibit no portion will probably have so many eyes riveted upon it as the groups of sculpture executed in Canadian butter. Wonderfully artistic are these pieces of 'sculpture in butter.' One group depicts the recent meeting of His Majesty and M. Fallières. Both figures, moulded to life-size, are wonderfully accurate presentments of King and President—that of M. Fallières being particularly life-like. The other group represents the landing of Jacques Cartier at Quebec in 1534, and his meeting with the Indian chief, Donnacona. Here again the figures seem remarkably natural in pose and feature. Cartier, in the costume of the period, stands in the stern of a boat; the chief is greeting him from the shore. Not only the figures, but the boat and the entire surroundings are beautifully modelled. How the butter is kept cool in the heat of summer is a question which will doubtless occur to the majority of spectators who admire the exhibit. The little gas engine which is hard at work on the farther side of the show-case supplies the answer. The engine is operating the refrigerating apparatus which prevents the sun's rays from playing havoc with the sculptor's handiwork.'

SESSIONAL PAPER No. 15a

REPORT OF THE ACTING OFFICIAL REFEREE FOR BUTTER AND CHEESE AT MONTREAL.

MONTREAL, Que., December 11, 1908.

J. A. RUDDICK,
Dairy and Cold Storage Commissioner,
Ottawa.

SIR,—I beg to present my report as acting official referee of butter and cheese at Montreal, for the season of 1908.

I examined and gave certificates on 115 lots of cheese containing 5,486 packages, and 40 lots of butter containing 1,540 packages. I also examined a few lots of cheese without orders from the salesmen and reported on the quality to Mr. G. G. Publow, Chief Dairy Instructor for Eastern Ontario.

I found 13 per cent of the cheese which I was requested to examine to be first grade; 81 per cent second grade and about 6 per cent third grade and culls.

MOST COMMON DEFECTS IN CHEESE.

The chief defects in the second and third grade cheese were as follows: 85 per cent of the lots had one or more 'batches' not clean in flavour, referred to in the certificates as 'not clean,' 'fruity,' 'off flavour,' 'yeasty,' 'gassy,' 'rancid,' 'sour milk' and 'feed flavour'; 50 per cent included batches open or loose in texture; 33 per cent had too much moisture; 23 per cent 'acidy' and 'mealy'; 8 per cent acidy and too soft; 20 per cent uneven or too pale in colour; and 29 per cent uneven in size, or with stained ends and poor finish.

Objectionable flavours are the most serious defects and they are, no doubt, largely due to the condition of the milk when delivered to the factories. Then some of the lots had too much moisture, which would make these flavours more pronounced, especially in fruity and off flavoured cheese. A small percentage is referred to as of 'sour milk' flavour, which seemed to be caused by strong flavoured starters, while 3 per cent were described as feed flavours.

I frequently found that when a lot was open and loose one or two batches showed sweet holes, and I judge from this that some of the makers were running their curds a little on the sweet side. Salting the curds too soon seemed to be one of the main causes of this defect.

CAUSES OF DEFECTS.

After the 15th of September, many of the lots were soft and pasty or contained too much moisture, indicating that the curds had not been sufficiently cooked or stirred dry enough. I suppose one of the main reasons for this was the scarcity of water, which would decrease the milk supply and increases the fat, making it necessary to give the curds a more thorough cooking. Then we have acidy and mealy texture with pale colour, which are rather common defects in the hot weather. There were also a few lots with a dry, rough texture, or cheese that seemed to be lacking in fat, showing over cooking and heavy salting. Later on in the season, we had acidy and moist cheese. I can understand that acidy and mealy texture might be due to overripe milk and heavy salting, but this latter defect seemed to be caused by bad management in the making. On the whole, the finish of Ontario cheese was fairly good. There were a few lots with stained and checked ends and during the fall some of the cheese did not seem to have been turned in the hoops in the morning. A few lots were uneven and undersized, and I generally found that these small cheese had too much bandage over the ends, with the boxes considerably higher than the cheese. If the boxes are large enough, the cheese should be made to weigh between 80 and 85 pounds. The weight should be put on neatly with a stencil near the lower band and close to the lap on the box.

BUTTER.

I found 32 per cent of the butter examined to be first grade and 68 per cent second grade. The chief defects were in the flavour and colour. Nearly 90 per cent of the lots had one or more churnings not clean in flavour and about half of these could be described as having an old cream or an overripe cream flavour. Forty per cent of the lots contained packages which were either mottled, cloudy or irregular in colour. A small percentage of the lots were greasy during the hot weather, showing high temperatures in churning and working. Nineteen per cent were not finished neatly and a few lots had mould on the parchment paper.

PACKAGES SHOULD BE NUMBERED.

At the Eastern Ontario Dairymen's Convention last year, Mr. Geo. H. Barr referred to the system of inspection in the warehouses and recommended a system of numbering the different batches of cheese and churnings of butter. He stated that the present system of selecting a small percentage of packages from a shipment and judging the quality of the whole lot by these samples was not in the best interests of the trade and did not seem to be fair either to the buyer or the seller. I quite agree with this, for I believe that many lots are passed which contain some packages not up to the standard, while on the other hand, whole shipments are turned down or objected to when only one or two batches are not right. The inspector cannot tell whether he has a fair representation or not, and personally, I think it is one of the most unsatisfactory jobs I ever tackled to attempt to give a fair report on the quality of 50 or 100 boxes of cheese by examining eight or ten packages when the only marks on the cheese or boxes are the factory brand and the weight. If the different batches were numbered one could see a sample of the whole make and give a correct report on the quality, and if the percentage of faulty packages was not too great, these could be picked out and the cut in price made only on those of inferior quality. I regret to say that the cheesemakers did not seem to take advantage of this system, because only four out of the 115 lots had the boxes numbered and such a high percentage of these were faulty, varying from 69 to 100 per cent, that I was obliged to class them as second grade.

But let me give you the experience of the buttermakers. Eighteen per cent of the forty lots examined, or 32 per cent of the total packages, were numbered. Now, 70 per cent of these and only 12 per cent of the unnumbered packages were classed as first grade, which should be sufficient evidence that numbering the packages is a great advantage and that it rests with the butter and cheese makers to put the system on a more satisfactory basis.

I do not know any reason why it should not be just as great an advantage to have the batches of cheese numbered. As a matter of fact, only three lots of cheese were classed as straight first grade, but by picking out one and two batches in twelve lots it raised the percentage of first grade cheese to 13 per cent of the total. Some of these lots had the dates on the cheese and by taking the boxes off the cheese, I was able to see a fairly representative sample of the lot.

In dating the cheese, it would be much better to put the date on the end. Then it would not be necessary to take the boxes off to look for the distinguishing mark. But the only proper way is to number the boxes, and it should not take a great deal of time if one has a set of one-half or three-quarter inch rubber stamps. If there are two vats, number the first day's make 1 and 2, and the next day's 3 and 4, and so on until the end of the week. It is only by adopting such a system as this that you can expect to get an accurate report on the quality, and it should put the system of inspection at Montreal on a basis which would be fair to all parties concerned.

SUGGESTIONS.

In closing, I want to suggest that a change be made in a clause in the standards for grading cheese and butter, which reads as follows:—

'If there are not more than 15 per cent of defective cheese in any lot, the inferior ones may be sorted out and classed separately. If more than 15 per cent are defective, the classification may apply to the whole lot.'

Now, 85 per cent of the lots I examined contained under 49 boxes. If one cheese in the samples was faulty, it meant that one batch was wrong which would be more than 15 per cent of the total, and I would suggest that 15 be changed to 17, which would allow for one batch being defective. In cases where cheese are numbered or dated on the ends, so that the different batches can be picked out by taking the covers off the boxes, I think this percentage should be increased to allow for two batches being defective.

JOSEPH BURGESS,
Acting Official Referee of Butter and Cheese.

An officer of this branch has been stationed at Montreal as official referee every year since 1900, with the exception of 1906. The demand for the services of such an official appears to be growing less and the number of examinations made in 1908 were so small that a continuance of the office can hardly be justified.

IDENTIFICATION MARKS ON CHEESE AND BUTTER.

Every officer who has filled the position of official referee has drawn attention to the importance of marking cheese and butter packages, so that 'batches' or churnings could be sorted. It has been shown in the clearest possible manner that such a system if adopted, is greatly to the advantage of the factory, and yet Mr. Burgess' report shows how few take the trouble to carry it out. If factorymen are so indifferent to their own interests, they have very little ground for complaint if they occasionally get the worst end of the bargain.

THE OUTLOOK FOR CANADIAN DAIRYING.

With a rapidly growing home market, a steady demand in Great Britain, and the constantly increasing importation of dairy produce by Germany (page 17), the outlook for Canadian dairying is as good as, if not better than it ever has been in the past.

The Canadian export dairy trade appears to be threatened only in one quarter, namely, by the increasing exports of cheese from New Zealand to Great Britain. The extent to which the Canadian industry may suffer from this competition will depend to a large extent, as has been shown elsewhere, (page 13) on the efforts which are made by Canadian cheese producers to meet it.

A somewhat pessimistic view of the dairy situation has been held in some quarters during the past year and the large decrease in the exports of butter and cheese since 1904 is put forward in justification. If we take into account the great increase in home consumption and the fact that the seasons of 1907 and 1908 were exceptionally unfavourable for the production of milk in the principal dairying districts, there is no real reason for believing that there is any general decline in the industry. Two unfavourable seasons coming together had a more serious result on production than if one or more average or good years had intervened. Further, the record years of 1903 and 1904 were two exceptionally favourable years, which resulted in the other extreme.

The dairy industry of Canada, but more particularly of Ontario, is concentrated around certain well recognized and clearly defined centres. As the distance is increased from these centres, one finds the dairying territory merging into that of special fruit growing, or beef and corn raising districts, so that there is always a sort of border land, between the dairying districts and the other districts, where the

farmers are more or less undecided between different pursuits, and it takes very little to influence these people one way or the other.

If one looks back over the history of dairying in Ontario, he will find that these undecided areas, if one may use that term, have their periods of ups and downs in dairying, but if the situation is examined at or near the centre of these districts, it will be found that there is not the slightest intention of giving up dairying in any way, but that the production of milk continues to increase as a result of better methods of feeding and more attention being paid to the improvement of dairy cows. There never was a time in the history of dairying in Canada when a keener interest was being displayed in all matters relating to the improvement of the dairy industry, and that is the best possible sign of a healthy condition. The increased use of milk and the growth of the condensed milk industry is having a considerable effect on the production of cheese and butter.

THE AERATION OF MILK FOR CHEESEMAKING.

Twenty to thirty years ago there was no point in the whole range of discussion bearing on the manufacture of cheese which received more attention than the aeration of milk. Speakers at dairy meetings and writers on dairy topics insisted on the general adoption of the practice, and official bulletins contained similar advice. Inventors seized upon the idea, and as a result, numerous utensils designed to facilitate the aeration of milk were soon offered to patrons of cheese factories. They were almost forced upon them by many well meaning factory managers. As has happened in other cases, the irresponsible agent for the sale of aerators, with his persuasive tongue and indifference to accuracy of statement, assisted very materially in spreading what must now be looked upon, in the light of experience and investigation, as something of the nature of a popular fallacy.

It is rather surprising when one comes to look into the question to find a complete lack of authority, based on accurate knowledge, to warrant the advocacy of the practice of aeration. We must, however, take into consideration one or two circumstances affecting the situation at that time. In the first place, the role of bacteria in the changes which take place in milk, and in the development of cheese and butter flavours, good or bad, was not so well understood twenty-five years ago as it is now. In the second place, the intelligent use of the fermentation starter was almost unknown in those days. The cheesemaker found when the milk was received at the factory 'too sweet' as the result of cooling, that the time required for 'ripening' was a great disadvantage. The slight cooling which aeration alone affected was in most cases sufficient to preserve the milk, but in a more advanced stage of acidity, and the process of cheesemaking was hastened accordingly. The cheesemaker then became an advocate of aeration. The advance in the art of cheesemaking and improved methods of handling milk on the farm, coming with the adoption of aeration, may probably have strengthened the belief that aeration was in some way beneficial. There is good reason to believe, however, that aeration is of no benefit to milk intended for cheesemaking, except insofar as it reduces the temperature. There is also this important consideration that aeration is least effective in the matter of cooling on the occasions when cooling is most needed. The extent of the cooling by aeration depends on the temperature of the air and it follows that there is the least cooling in the hottest weather, although that is the time when the lowest temperatures are required. While there may have been some doubts in the past, we are now in a position to declare that exposure of the milk to the air in any manner, either by running it over an aerator, or by pouring or dipping under average farm conditions, is positively harmful.

Before proceeding to describe the experiments, the results of which compel us to adopt the foregoing view, it may be well to refer briefly to the change of opinion which has already taken place regarding the benefits of aeration.

It has always been pointed out that milk should be aerated only in a 'pure' atmosphere, which is undoubtedly good advice if it could be followed literally. If such a thing was possible, the whole question of aeration might assume a different aspect from what it does. We are compelled, in the light of teaching of bacteriology, however, to look upon the word 'pure' when applied to ordinary air, as a merely relative term, because we know that the air is never absolutely pure; that it carries fine particles of dust at all times, even though these may not be apparent to any of the senses. Thus, the germs which set up injurious fermentations in the milk, and which produce 'gas' and objectionable flavours, may be carried to the milk under conditions which would seem to be good as far as the eye can tell. It is practically impossible to find 'pure' air, using the term in a bacteriological sense.

A knowledge of these things soon began to influence opinion on the subject from a theoretical point of view. Then on the practical side, observant cheesemakers have noticed that they frequently received the best milk from patrons who never aerated nor stirred it, but who cooled it when necessary to prevent it from souring. Since the proper use of the 'starter' has become quite general, it is found that some of the best cheese is now made from Saturday evening's milk which is never aerated and which is brought to the factory immediately after milking, in the same way that the morning's milk is delivered.

In addition to these practical observations, some experiments were conducted at various United States institutions, but in no case, as far as the writer is aware, were there recorded any positive results in favour of aeration of milk for cheesemaking. Professor Dean, of the Ontario Agricultural College, carried out some experiments about 1900 and in his conclusions, he practically condemned aeration, but as his work was done with the college herd, many cheesemakers felt at the time that the results might not be applicable to ordinary farm conditions. In the face of all this evidence, both circumstantial and direct, students of cheesemaking were bound to alter their views in relation to this question, and during recent years many cheesemakers, instructors and others have been discouraging the aeration of milk. It was felt, however, that there was a lack of authoritative data on the subject and it was with the hope of supplying that lack that the writer secured the authority of the Minister of Agriculture to institute a series of experiments bearing on the question. The duty of carrying out this work was assigned to Mr. Geo. H. Barr, chief officer of the Dairy Division, who was assisted at different times by Mr. J. G. Bouchard and Mr. I. Trudel, also of the dairy staff. The results of the experiments are presented in Mr. Barr's own words.

Experiments Relating to the Aeration of Milk for Cheesemaking.

Mr. J. A. Ruddick,
Dairy and Cold Storage Commissioner,
Ottawa.

Sir,—I hereby submit a report of the experimental work on the care of milk for cheesemaking, carried on at Smith's Falls, Ont., under your direction during the summer of 1908.

Arrangements for carrying on the work.

A very satisfactory arrangement was made with Mr. John McEwen, proprietor of the Rideau Queen cheese factory, Smith's Falls, whereby we were given the use of the creamery room adjoining the cheese factory.

A number of patrons of this factory were also willing to allow us the privilege of going to their farms to take care of the milk.

At first we thought of taking the milk from six or eight farms, but found it would not be possible to get all the details in connection with the handling of the

milk from so many places, so we finally decided to use the milk from the farms of Mr. Walter Hyslop and Mr. D. Condie.

Two small vats were installed at the factory with all the other utensils necessary for manufacturing cheese. Steam was supplied from the boiler in the cheese factory.

THE OBJECT OF THE WORK.

No attempt was made to secure information from a bacteriological standpoint but rather to discover what effect different methods of handling the milk at the farms would have on the quality of the curd and cheese.

The principal points kept in view were to ascertain the advantages or disadvantages of aerating, cooling and aerating, and cooling the milk without aeration, all under ordinary farm conditions, and if possible, discover a simple, convenient, inexpensive and effective method of treating the milk, so that it might be delivered at the cheese factories in such a condition that the cheesemakers would not have to contend with gassy and other undesirable fermentations during the process of manufacture, or suffer losses from unclean flavours in the cheese.

PLAN OF WORK.

The general routine of the work was as follows:—In the evening the writer and his assistant went to the farms in time to take care of the milk as it was drawn from the cows. The milk was divided equally into two milk cans marked A and B, and the treatment given the milk in each can varied from time to time as shown in tables 1 and 2.

We treated the milk at both farms exactly alike each evening. We did not do anything with the morning's milk at the farms. It was not cooled or aerated.

The milk was delivered at the factory by the owners, where it was weighed, and samples taken from each can for the Babcock test, Acidimeter and fermentation curd tests.

The A and B cans of the evening's milk were put into A and B vats respectively and the morning's milk when delivered separately was divided equally between the two vats.

The cheese were made according to the best methods practiced in our cheese factories. Thirty-four experiments were made, as shown in the different tables following.

CURING AND TESTING THE CHEESE.

The cheese were kept in the factory curing room for twelve or fifteen days, then shipped to the Ottawa Cold Stores. The curing room was of very ordinary construction, the temperature going as high as 84 degrees in July. The average temperatures were for June 71, July 72, and August 68 degrees.

The cheese were tested for flavour and texture just before shipping from the factory, and again on September 21st in the Ottawa Cold Stores.

FORMS USED IN RECORDING EACH DAY'S WORK.

Experiment No._____ FORM No. I.

Date_____

——	Can A.	Can B.	Morning's Milk.	Total Milk.	Treatment of Milk at Farm.
Wm. Hyslop. Lbs. evening milk..... Temp. at Farm..... " Factory..... % Acid at " ..... % Butter Fat ..... . Lbs. Cheese per lb. { G.. Fat . .. . { C..					Can A.
Flavour A		B.			Can B.
Curd Test A.		B.			
D. Condie. Lbs. evening milk .... Temp. at Farm... ..... " Factory..... % Acid at " ..... % Butter Fat... ..... Lbs. Cheese per lb. { G.. Fat ..... { C. .					Can A.
Flavour A.		B			Can B.
Curd Test A.		B.			

Weather conditions.

FORM No. 2.

Experiment No.—— Date ——

——	Vat A.	Vat B.
Lbs. milk		
Acidity when received		
" at setting		
Per cent starter		
Time set		
" cut		
Number times cut		
Acidity at cutting		
Time dipped		
Acidity—dipping		
Condition of curd at dipping		
Time milled		
Per cent acid—milling		
Condition curd when milled		
Time salted		
Condition of curd at salting		
Rate of salt		
Per cent butter fat in milk		
" whey		
Weight green cheese		
Lbs. of milk per lb. of green cheese		
Weight cured cheese		
Lbs. of milk per lb. of cured cheese		

EQUIPMENT AT THE FARMS.

The equipment used at each farm consisted of two aerators, a receiver for dividing the milk equally into the cans, a shotgun can for ice and water, a dipper, a thermometer, and two half barrels for setting the milk cans in cold water.

Each cow's milk was divided by pouring it into the square tin receiver with an outlet at each end placed on top of the aerators or cans, thus dividing all the milk equally into two cans marked A and B. The morning's milk when mixed with the evening's at the farm was divided in the same manner.

LOCATION OF THE FARMS FROM WHICH MILK WAS RECEIVED.

Mr. Condie's farm lies on the west and Mr. Hyslop's on the south side of the town of Smith's Falls. A portion of Mr. Condie's farm consists of drowned land adjoining the Rideau canal, and the cows pastured a good part of the summer on the flats around this swampy section. Mr. Hyslop's farm had some low land as well as high and stony soil. One could scarcely call either farm ideal pasture land for the most delicate flavoured milk, but we were very glad to have these conditions, thus giving an opportunity to see results from what may be considered about average farm lands.

THE HERDS.

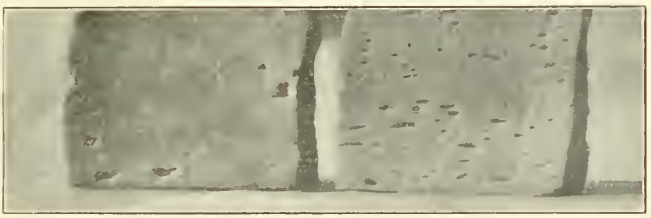
Mr. Condie's herd of seventeen cows consisted of eight grade Ayrshires, four grade Holsteins, and five grade Shorthorns. Several of these cows had aborted during the winter, but were milking fairly well all season. One cow had been milking over a year.

Mr. Hyslop's herd of eighteen cows consisted of one pure bred Holstein, two grade Holsteins, and fifteen grade Ayrshires. A number of his cows had also aborted during the winter. These cows were fed silage for several weeks in July, which kept up the flow of milk well, with no detrimental effect on the milk for cheesemaking.

Fig. 1.—Milk stand and icehouse at the Hyslop farm. 38 p.c. of the curd tests from milk aerated by dipping running over an aerator on this stand were gassy and not clean in flavour, and only 6·6 p.c. of the curd tests from milk cooled without aeration in the tub of water were slightly gassy and not quite clean in flavour.

Fig. 2. Milk stand at Condie farm. 61 p.c. of the curd tests from milk dipped or run over an aerator on this stand were gassy and not clean in flavour.

Fig. 1.—Platform and watering trough in the barnyard at the Condie farm. 71 p.c. of the curd tests from milk aerated on this stand were gassy and not clean in flavour, some of them floaters. Only 6·6 p.c. of the curd tests from the milk cooled in this tub without aeration were slightly gassy and not quite clean in flavour.



A B

Fig. 2.—Showing the condition of the curds just before milling on July 24.

'A' curd was free from gas and was clean in flavour. The milk was cooled by setting the milk cans in cold water and was not aerated.

'B' curd was very gassy in texture and was not clean in flavour. The milk was put into the milk cans and was aerated by dipping for about 20 minutes.

THE STABLES.

The cows were always milked in the stable at both places. Mr. Hyslop's stable was frame and Mr. Condie's a stone basement under the barn. Both had wooden floors, which could not be considered by any means as sanitary as cement. The walls, ceilings and floors were dusty.

MILKING OF THE COWS.

The milking was done at Mr. Hyslop's by his four sons. The milk was poured into a strainer pail in the stable and carried to the stand and strained into the cans. Mr. Condie and his two hired men did the milking at his place. As the cows were milked, the milk was strained into shotgun cans standing behind the cows and then carried to the milk stand.

At both places, bright tin milk pails were used. No special regulations were asked for in regard to milking, or feeding the cows, our object being to take the milk as they gave it to us, and see what result different treatment at the farm would have on it when manufacturing it into cheese.

LOCATION OF THE MILK STANDS WHERE THE MILK WAS TREATED.

Fig. 1, plate 1, shows Mr. Hyslop's milk stand. This stand is close to the ice house and is 60 feet from the cow stable door. This space is in grass and fairly free from manure or dust. On the other side of the stand is the orchard and backyard of the house. It is probably a little too close to the stable, and the buildings and orchard prevent getting the full benefit of the wind from all directions, yet it is better situated than hundreds of milk stands throughout the country. Everything around it was kept clean and tidy. Notwithstanding the comparatively favourable location of this stand, 38 per cent of the curd tests from milk dipped or run over an aerator here, were gassy and not clean in flavour. The experiments in cooling the milk without aeration at his farm were made on this stand, or on the wagon standing beside it, and only 6·6 per cent of the curd tests from the cooled milk were gassy and not quite clean in flavour.

Fig. 2, plate 1, shows the milk stand at Mr. Condie's. It is at the end of the woodshed, in the corner of which is stored the ice. A roadway runs between it and the house. The horse stable is about 40 feet distant, directly in front of the stand, and the barnyard and cow stable on the other side of this about 136 feet from the stand. A hog pen is situated 88 feet from the stand, a short distance from the other end of the woodshed. This stand may be considered in a good location, as there is good circulation of air. There is, however, a little more dust around it than at the Hyslop stand. Sixty-one per cent of the curd tests from milk aerated on this stand were gassy and not clean in flavour.

Fig. 1, plate 11, shows where the milk was cooled by setting the milk can in a tub of water at Mr. Condie's. This platform is in the corner of the barnyard. A corner of the horse stable is seen to the right. The cow stable is directly in front of this trough, about 96 feet distant. All around this trough is bare ground, where the cows often stood both before and after milking, and in dry weather it was very dusty. The manure pile from the horse stable is about 52 feet from this platform.

The pump is situated behind the horse stable, 93 feet from the trough, and the water piped under ground to the trough. A gas pipe was put into the upright pump log to carry the water to the tub at the end of the trough, and a spout fixed from the tub into the trough. All the water pumped for the stock had to pass through this tub, flowing out at the top into the trough. By this arrangement, not five minutes' time was required to take care of the milk cooled in this manner, for when enough water was pumped to water the cows, the milk was cool enough to leave for the night. Only 6·6 per cent of the curd tests from milk cooled without aeration on this platform

were gassy and tainted, while 71 per cent of the curd tests from milk aerated in the same place were gassy and tainted and some of them were 'floaters.'

THE AERATION OF THE MILK.

The word 'aeration' used in this connection means the exposure of the milk to the air, either with a dipper or by running it over an aerator.

The following tables show the date, number of experiment, the treatment each lot of milk received at the farm, temperature and acidity of the milk at the factory, per cent of butter fat in the milk, and the pounds of milk used in each experiment, also the condition of the curd tests, curds in the vats, and the flavour of the cheese.

TABLE I—RECORD OF THE EXPERIMENTS

Date.	Exp. No.	Treatment the milk received at the farms.	Temp. of the air while aerating.	Temp. of the milk when left at night.	Temp. of the water when left at night.	Lowest temp. of the air during night.	Temp. of the milk at the factory.	Acidity of the milk at the factory.	Butter-fat in the milk.	Lbs. of milk.
			deg.	deg.	deg.	deg.	deg.	p. c.	p. c.	
June 17	1-A	Milk run over an aerator filled with water and ice	54	60	....	....	55	·17	....	474
	1-B	" " without water or ice.	54	83	....	....	62	·17	....	474
" 25	3-A	" " filled with cold water	64	68·5	....	60	63	·165	3·4	432
	3-B	" " without cold water	64	79·5	....	60	64	·167	3·4	402
" 26	4-A	Milk in milk cans, no aeration or cooling	....	91	....	54	70	·18	3·5	463
	4-B	" " aerated by dipping	69	91	....	54	69	·18	3·5	463
" 30	5-A	Milk cooled by placing a shotgun can of water in it, no aeration	....	75·5	....	63	75 *	·17	3·4	374
	5-B	Milk aerated by dipping	74	90	....	63	77·5*	·177	3·4	417
July 1	6-A	Milk cooled by placing a shotgun can of water in it, no aeration	....	82	....	58	76·5*	·175	....	407
	6-B	Milk aerated by dipping	70	91	....	58	76·5*	·172	....	402
" 2	7-A	Milk run over an aerator on milk stand	72·5	85·5	....	62	73·5	·17	3·4	412
	7-B	" " in barnyard	72·5	84	....	62	72	·167	3·4	406
" 3	8-A	" " on milk stand	72	87	....	63	78	·17	3·4	384
	8-B	" " in barnyard	72	87·5	....	65	77	·17	3·4	408½
" 9	10-A	" " on milk stand	65	87	....	58	68	·175	3·6	383
	10-B	" " in barnyard	65	85·5	....	58	64·5	·172	3·6	396
" 10	11-A	" " filled with water and covered	68	69	....	61	63	·17	....	381
	11-B	" " no water used	68	77·5	....	61	66	·17	....	381
" 14	12-A	" " filled with water and covered	68·5	68	....	62	63·5	·172	3·6	377
	12-B	" " filled with water not covered	68·5	65·5	....	62	63·5	·17	3·6	377
" 15	13-A	" " filled with water and covered	66	69	....	61	63	·16	3·6	356
	13-B	" " no water used	66	81	....	61	66	·162	3·6	356
" 16	14-A	Milk cooled by placing a shotgun can of water in it, no aeration	....	77	....	54	57	·157	3·4	375
	14-B	Milk aerated by dipping	64	85	....	54	62	·16	3·4	375
" 21	15-A	Milk cans placed in a tub of water, no aeration	....	75·5	52	66	62	·16	3·6	342
	15-B	Milk aerated by dipping	64	92	....	66	71	.....	3·6	342
" 22	16-A	Milk cans placed in a tub of water, no aeration	....	77	55	66	63	·16	3·6	341
	16-B	Milk aerated by dipping	66·5	90	....	66	69	·167	3·6	341
" 23	17-A	Milk cans placed in a tub of water, no aeration	....	78	57	66	64	·167	3·6	337
	17-B	Milk aerated by dipping	70·5	91	....	66	71	·177	3·6	337
" 24	18-A	Milk cans placed in a tub of water, no aeration	....	78	54	65	64	·165	3·5	327½
	18-B	Milk aerated by dipping	67	92	....	65	74	·18	3·5	327½
" 28	19-A	Milk cans placed in a tub of water, no aeration	....	73·5	54·5	72	66	·165	3·5	334
	19-B	" " " milk dipped	77·5	70·5	55	72	67·5	·165	3·5	334
" 29	20-A	" " " no aeration.	....	77	56	71	68·5	·162	3·5	327
	20-B	" " " milk dipped	81·5	77	56	71	69·5	·157	3·5	327
" 30	21-A	" " " no aeration.	....	77·5	59	74	70	·17	3·6	335½
	21-B	Milk run over an aerator filled with cold water.	73·5	70·5	. .	74	73	·162	3·6	335½
" 31	22-A	Milk cans placed in a tub of water, no aeration.	....	79·5	60	73	71	·157	3·5	325
	22-B	Milk run over an aerator filled with cold water.	78	71	....	73	72·5	·162	3·5	335

* Morning's milk mixed with evening's.

TABLE 1—RECORD OF THE EXPERIMENTS—*Concluded.*

Date.	Exp. No.	Treatment the milk received at the farms.	Temp. of the air while aerating.	Temp. of the milk when left at night.	Temp. of the water when left at night.	Lowest temp. of the air during night.	Temp. of the milk at the factory.	Acidity of the milk at the factory.	Butter-fat in the milk.	Lbs. of milk.
			deg.	deg.	deg.	deg.	deg.	p. c.	p. c.	
Aug. 4	23–A	Milk cans placed in a tub of water, no aeration.	....	76	61	66	64	·165	3·5	328
"	23–B	Milk in milk cans, no aeration or cooling	....	93	....	66	67	17	3·5	328
" 5	24–A	Milk cans placed in a tub of water, no aeration.	....	78	52	70	68·5	·165	3·5	310½
	24–B	Milk in milk cans, no aeration or cooling	....	96	....	70	72	·195	3·5	310½
" 6	25–A	Milk cans placed in a tub of water, no aeration.	..	77·5	58	62	66·5	·165	3·5	654
	25–B	Milk from the cheese factory vat	....	....	....	62	.	·18	3·6	654
" 7	26–A	Milk cans placed in a tub of water, no aeration.	..	71	64·5	62	65	·167	3·5	312
	26–B	Milk put into rusty cans, no aeration or cooling	....	93	..	62	70	·177	3·5	312
" 11	27–A	Milk cooled by placing shotgun cans of water in it, no aeration.	....	86·5	....	62	69	·165	3·6	304
	27–B	Milk run over an aerator.	68	86·5	....	62	68·5	·165	3·6	304
" 12	28–A	Milk cooled by placing shotgun cans of water in it, no aeration	....	87	....	63	70	·165	3·6	301½
	28–B	Milk run over an aerator	70	87	....	63	69·5	·165	3·6	301½
" 13	29–A	Milk cans placed in a tub of water, no aeration.	....	80	....	70	71	·165	3·7	310½
	29–B	Milk put in rusty cans in a tub of water, no aeration	....	80	....	70	71	·165	3·7	310½
" 14	30–A	Milk cans placed in a tub of water, no aeration.	....	84	....	65	69·5	·165	3·7	615
	30–B	Milk taken from the factory vat	....	....	....	65	.....	·18	3·6	615
" 18	31–A	Milk cans placed in a tub of water, no aeration.	....	83·5	66·5	61	65	·165	3·6	300
	31–B	Milk in milk cans, no aeration or cooling	....	94	..	61	66	·167	3·6	300
" 19	32–A	Milk in good milk cans, no aeration or cooling	....	....	....	59	64·5	·16	3·6	289½
	32–B	Milk in rusty " " "	....	....	....	59	64	·167	3·7	289½
" 20	33–A	Milk in good " " "	....	....	....	48	68 *	·157	3·8	302
	33–B	Milk in rusty " " "	....	....	....	48	68 *	·165	3·7	302
" 25	34–A	Milk in milk cans, no aeration or cooling	....	89	....	....	70	·167	3·9	311½
	34–B	Milk aerated by dipping	....	85	....	....	70	·165	3·9	333½

* Morning's milk mixed with evening's.

TABLE 2.—SHOWING CONDITION OF CURD AND CHEESE.

Date.	Exp. No.	Treatment the milk received at the farms.	Curd Test.		Curds in the Vats.		Flavour of the Cheese.
			Flavour.	Texture.	Flavour.	Texture.	
June 17..	1-A	Milk run over an aerator filled with water and ice			Clean.	Solid	Clean.
	1-B	" " without water or ice			Clean.	Solid	Not clean.
" 25..	3-A	" " filled with cold water	1 clean.	1 not clean.. 1 solid	1 gassy	Not clean..	Gassy Not clean.
	3-B	" " without cold water		2 not clean..	2 gassy	Gassy	Gassy Not clean.
" 26..	4-A	Milk in milk cans, no aeration or cooling		2 not clean..	2 gassy	Not clean..	Solid Rancid.
	4-B	" " aerated by dipping		2 gassy	2 gassy	Not clean..	Gassy Not clean.
" 30..	5-A	Milk cooled by placing shotgun cans of water in it, no aeration	2 clean	2 solid		Clean.	Solid Clean.
	5-B	Milk aerated by dipping		2 gassy	2 gassy	Gassy	Gassy Not clean.
July 1..	6-A	Milk cooled by placing shotgun cans of water in it, no aeration	2 clean	2 solid		Clean.	Solid Not clean.
	6-B	Milk aerated by dipping		2 not clean..	2 gassy	Not clean..	Gassy Not clean.
" 2..	7-A	Milk run over an aerator on milk stand	2 clean	2 solid		Clean.	Gassy Clean.
	7-B	" " in barnyard		2 gassy	1 gassy 1 floater	Not clean..	Gassy Not clean.
" 3..	8-A	" " on milk stand	1 clean	1 gassy 1 solid	1 floater	Good	Solid Not clean.
	8-B	" " in barnyard		2 gassy	2 floaters.	Gassy	Very gassy.. Not clean.
" 9..	10-A	" " on milk stand	1 clean.	1 not clean.. 1 solid	1 gassy	Clean.	Solid Clean.
	10-B	" " in barnyard	1 clean.	1 not clean.. 1 solid	1 gassy	Clean.	Solid Not clean.
" 10 .	11-A	" " filled with water and covered..	2 clean	2 solid		Clean.	Solid Not clean.
	11-B	" " no water used	1 clean.	1 not clean.. 1 solid	1 gassy	Not clean..	Solid Not clean.
" 14..	12-A	" " filled with water and covered..	1 clean	1 not clean. 1 solid	1 gassy	Clean.	Solid Rancid.
	12-B	" " filled with water not covered..	2 clean	2 solid		Not clean..	Gassy Fruity.
" 15..	13-A	" " filled with water and covered..		2 not clean..	2 gassy	Clean.	Solid Clean.
	13-B	" " no water used		2 gassy	2 gassy	Not clean..	Gassy Not clean.
" 16..	14-A	Milk cooled by placing shotgun cans of water in it, no aeration	2 clean	2 solid		Clean.	Solid Clean.
	14-B	Milk aerated by dipping		2 not clean..	1 solid 1 gassy	Not clean..	Solid Clean.
" 21..	15-A	Milk cans placed in a tub of water, no aeration	2 clean.	2 solid		Clean.	Solid Not clean.
	15-B	Milk aerated by dipping		2 gassy	2 floaters.	Not clean..	Gassy Fruity.
" 22..	16-A	Milk cans placed in a tub of water, no aeration	2 clean	2 solid		Clean.	Solid Clean.
	16-B	Milk aerated by dipping		2 gassy	1 gassy 1 floater	Gassy	Gassy Fruity.
" 23..	17-A	Milk cans placed in a tub of water, no aeration	2 clean.	2 solid		Clean.	Solid Clean.
	17-B	Milk aerated by dipping	1 clean.	1 not clean. 1 solid	1 gassy	Gassy	Gassy Fruity.
" 24..	18-A	Milk cans placed in a tub of water, no aeration	2 clean.	2 solid		Clean.	Solid Clean.
	18-B	Milk aerated by dipping		2 gassy	2 floaters.	Gassy	Gassy Fruity.

"	28..	19–A	Milk cans placed in a tub of water, no aeration	2 clean		2 solid		Clean	Solid	Clean.
		19–B	" " milk dipped	1 clean	1 not clean	1 solid	1 gassy	Not clean	Solid	Clean.
"	29..	20–A	" " no aeration	2 clean		2 solid		Clean	Solid	Clean.
		20–B	" " milk dipped	1 clean	1 not clean	1 solid	1 gassy	Not clean	Solid	Clean.
"	30..	21–A	" " no aeration	2 clean		2 solid		Clean	Solid	Clean.
		21–B	Milk run over an aerator filled with cold water	2 clean		2 solid		Clean	Solid	Not clean.
"	31..	22–A	Milk cans placed in a tub of water, no aeration	2 clean		2 solid		Clean	Solid	Clean.
		22–B	Milk run over an aerator filled with cold water		2 not clean		2 gassy	Clean	Solid	Clean.
Aug.	4..	23–A	Milk cans placed in a tub of water, no aeration	2 clean		2 solid		Clean	Solid	Rancid.
		23–B	Milk in milk cans, no aeration or cooling		2 not clean		2 gassy	Not clean	Solid	Rancid.
"	5..	24–A	Milk cans placed in a tub of water, no aeration	2 clean		2 solid		Clean	Solid	Clean.
		24–B	Milk in milk cans, no aeration or cooling		2 not clean	2 solid		Not clean	Solid	Not clean.
"	6..	25–A	Milk cans placed in a tub of water, no aeration	1 clean	1 weedy	2 solid		Clean	Solid	Clean.
		25–B	Milk from the cheese factory vat					Gassy	Gassy	Gassy.
"	7..	26–A	Milk cans placed in a tub of water, no aeration	1 clean	1 not clean	1 solid	1 gassy	Clean	Solid	Clean.
		26–B	Milk put into rusty cans, no aeration or cooling		2 not clean	1 solid	1 floater	Gassy	Gassy	Dirty.
"	11..	27–A	Milk cooled by placing shotgun cans of water in it, no aeration	1 clean	1 not clean	1 solid	1 gassy	Clean	Solid	Clean.
		27–B	Milk run over an aerator		2 gassy		2 gassy	Gassy	Gassy	Not clean.
"	12..	28–A	Milk cooled by placing shotgun cans of water in it, no aeration	2 clean		1 solid	1 pinholes	Clean	Solid	Clean.
		28–B	Milk run over an aerator	1 clean	1 not clean	1 solid	1 pinholes	Clean	Solid	Clean.
"	13..	29–A	Milk cans placed in a tub of water, no aeration	2 clean		1 solid	1 few pinholes	Clean	Solid	Clean.
		29–B	Milk put in rusty cans in tub of water, no aeration	1 clean	1 not clean	1 solid	1 gassy	Not clean	Solid	Not clean.
"	14	30–A	Milk cans placed in a tub of water, no aeration	2 clean		2 solid		Clean	Solid	Clean.
		30–B	Milk taken from the factory vat					Gassy	Pinholes	Off.
"	18..	31–A	Milk cans placed in a tub of water, no aeration	2 clean		2 solid		Clean	Solid	Clean.
		31–B	Milk in milk cans, no aeration or cooling		2 not clean		2 pinholes	Not clean	Solid	Clean.
"	19.	32–A	Milk in good milk cans, no aeration or cooling	2 clean		1 solid	1 pinholes	Clean	Solid	Clean.
		32–B	Milk in rusty milk cans, no aeration or cooling	1 clean	1 not clean	1 solid	1 gassy	Clean	Solid	Clean.
"	20..	33–A	Milk in good milk cans, no aeration or cooling	2 clean		2 solid		Clean	Solid	Clean.
		33–B	Milk in rusty milk cans, no aeration or cooling	2 clean		2 solid		Clean	Solid	Clean.
"	25..	34–A	Milk in milk cans, no aeration or cooling	2 clean		2 solid		Clean	Solid	Clean.
		34–B	Milk aerated by dipping	2 clean		2 solid		Clean	Solid	Clean.

NOTE.—In making the curd tests a sample was taken from cans A and B from each farm, thus making 2 curd tests in each A and B lot. For example, in experiment number 29, Aug. 13th B can from the Hyslop farm was clean while B can from the Condie farm was not clean and gassy.

RESULTS OF AERATING THE MILK WITH A DIPPER.

When we used the dipper, the milk was put directly into the milk cans as it was milked, and dipped occasionally during milking time. After the milking was finished, dipping was continued for ten or fifteen minutes. In most cases, the covers were left off the cans over night when the milk was dipped, as this is the usual practice at the farms. Dipping the milk lowered the temperature on an average about 6·5 degrees, the average temperature when left about fifteen minutes after milking was finished being 89·6 degrees.

AERATING THE MILK BY RUNNING IT OVER A CHAMPION AERATOR.

The aerator used was well made of good tin, of such a shape that it was easily cleaned, and it could be used as a combined aerator and cooler by filling it with cold water or water and ice.

The time required to prepare one of these aerators for use and again wash it after using, is close upon twenty minutes, and like all other utensils used in connection with milk, if it is not properly washed and scalded it soon becomes a source of contamination instead of a benefit to the milk. In our experiments it usually took about an hour to pass the milk over this aerator, as that was about the time it took to do the milking.

The temperature of the milk was lowered from 8·5 to 18·5 degrees while running over the aerator, according to the temperature of the air, the average reduction of temperature being 12 degrees, leaving the milk in the cans at an average of 84 degrees about ten minutes after milking was finished.

Date.	Exp. No.	Curd Tests.				Curds in the Vats.		Flavour of the cheese.
		Flavour.		Texture.		Flavour.	Texture.	
June 17	1—B	.....	.....	.....	.....	Clean	Solid.	Not clean.
" 25.	3—B	.....	2 not clean..	.....	2 gassy.....	Gassy.....	Gassy.....	Not clean.
July 2.....	7—A	2 clean....	.....	2 solid....	.....	Clean	Gassy.....	Clean ...
" 2.....	7—B	.....	2 gassy.....	.....	2 gassy.....	Gassy.....	Gassy.....	Not clean.
" 3.....	8—A	1 clean....	1 gassy... ..	1 solid....	1 floater.....	Clean	Solid	Not clean.
" 3.....	8—B	....	2 gassy.....	.....	2 floaters....	Gassy.....	Very gassy..	Not clean.
" 9.... ..	10—A	1 clean....	1 not clean..	1 solid....	1 gassy.....	Clean	Solid	Clean ....
" 9.....	10—B	1 clean....	1 not clean..	1 solid. ...	1 gassy.....	Clean	Solid..	Not clean.
" 10.....	11—B	1 clean....	1 not clean..	1 solid....	1 gassy.....	Not clean.	Solid.....	Not clean.
" 15.....	13—B	. .....	2 gassy.....	....	2 gassy	Not clean.	Gassy.....	Not clean.
Aug. 11.... ...	27—B	.....	2 gassy.....	.....	2 gassy.....	Gassy . ..	Gassy.....	Not clean.
" 12.....	28—B	1 clean....	1 not clean..	1 solid....	1 gassy.....	Clean ...	Solid.	Clean ....

MILK AERATED AND COOLED BY USING THE CHAMPION AERATOR FILLED WITH WATER AND WATER AND ICE.

We only used ice in the water twice, as we found if the coolers were filled with well water at 46 degrees we could cool the quantity of milk we were using (80 to 100 pounds) quite low enough. Each cooler held about 120 pounds of water. When ice was used, a much lower temperature could be secured.

The average temperature of the milk about fifteen minutes after milking was finished was 67·7 degrees, thus lowering the temperature 28·3 degrees while passing over the cooler.

Date.	Exp. No.	Curd Tests.		Curds in the Vats.		Flavour of the Cheese.
		Flavour.	Texture.	Flavour.	Texture.	
June 17	1—A			Clean	Solid	Clean.
" 25	3—A 1 clean	1 not clean.	1 solid	1 gassy	Not clean.	Gassy	Not clean.
July 11	12—B 2 "		2 "		"	"	Fruity.
" 30	21—B 2 "		2 "		Clean	Solid	Not clean.
" 31	22—B	2 not clean.		2 gassy	"	"	Clean.
" 10	11—A 2 clean		2 solid		"	"	Not clean.
" 14	12—A 1 "	1 not clean.	1 "	1 gassy	"	"	Rancid.
" 15	13—A	2 "		2 "	"	"	Not clean.

MILK COOLED IN A TUB OF WATER AND AERATED WITH A DIPPER.

Only two lots were treated in this manner. The cans were placed in the water before milking commenced and the milk poured into these cans as the cows were milked. It was dipped occasionally during milking and for ten or fifteen minutes afterwards, the average temperature then being 74 degrees. By this method the temperature was lowered 22 degrees, the quantity of water used being from 180 to 200 pounds.

Date.	Exp. No.	Curd Tests.		Curds in the Vats.		Flavour of the Cheese.
		Flavour.	Texture.	Flavour.	Texture.	
July 28	19—B 1 clean	1 not clean.	1 solid	1 gassy	Not clean.	Solid	Clean.
" 29	20—B 1 "	1 "	1 "	1 "	"	"	"

MILK COOLED BY PLACING A SHOTGUN CAN OF WATER OR WATER AND ICE INTO THE MILK. NO AERATION.

In most cases, the can of water was put into the milk during milking, and refilled with fresh water shortly after milking was finished, about 75 pounds of water being used. When ice and water were used, we did not need to change it, about 25 pounds of water and 8 or 10 pounds of ice being sufficient to cool from 80 to 100 pounds of milk. The temperature of the milk was reduced 9·5 to 20·5 degrees about ten minutes after milking was finished. The lower temperature was secured when ice was used. The can of water was left in the milk all night. The covers were always put on the milk cans about ten minutes after milking was finished. The average temperature of the milk at this time was 81·6 degrees. Great care was taken to keep the outside of the shotgun cans perfectly clean before putting them into the milk. A little dust or dirt on the outside of the cans will give very bad results.

Date.	Exp. No.	Curd Tests.		Curds in the Vats.		Flavour of the Cheese.
		Flavour.	Texture.	Flavour.	Texture.	
June 30	5—A 2 clean		2 solid	Clean	Solid	Clean.
July 1	6—A 2 "		2 "	"	"	Not clean.
" 16	14—A 2 "		2 "	"	"	Clean.
Aug. 11	27—A 1 "	1 not clean.	1 "	1 gassy	"	"
" 12	28—A 2 "		1 "	1 "	"	"	"

MILK COOLED BY PLACING THE MILK CANS IN A TUB OF COLD WATER. NO AERATION.

One half of a gasoline barrel was used for a tub. At Mr. Hyslop's the milk was cooled either on the milk stand or on the milk wagon standing beside the stand. (Fig. 1, plate 1). Our custom was to fill the tub with water from the well before milking commenced, and set the milk can in it, and as the cows were milked, the milk was strained into the can. We found that 180 to 200 pounds of water would cool one half of the milk from eighteen cows. This milk was seldom stirred and never dipped. About the only agitation it received was to stir it with the thermometer to get the temperature, and as soon as milking was finished the cover was put on and the can left sitting in the water all night. The water used came from the well at 46 degrees temperature. The average temperature of the water in the tub when we left it (about five minutes after the milking was finished) was 59·6 degrees and the milk at the same time was 77·3 degrees. The average temperature of the evening's milk at the factory the following morning was 66·5 degrees. No time was spent on this milk after the milking was finished.

At Mr. Condie's farm the milk was cooled as shown in Plate II, Fig. 1. Usually enough water was pumped for the cows before they were put in the stable to milk, leaving the tub full of water at about 47 degrees temperature. The milk can was set in this water and as it was filled with milk, it forced a good deal of the water over into the watering trough. It was seldom necessary to pump any more water to cool half of the milk from seventeen cows.

The milk was not aerated in any way and the only stirring it received was with the thermometer when taking the temperature.

The cover was put on the can as soon as milking was finished. The temperatures of the water and the milk were practically the same as at Mr. Hyslop's.

Date.	Exp. No.	Curd Tests.				Curds in the Vats.		Flavour of the Cheese.
		Flavour.		Texture.		Flavour.	Texture.	
July 21	15—A	2 clean		2 solid		clean	solid	not clean
" 22	16—A	2 clean		2 solid		clean	solid	clean
" 23	17—A	2 clean		2 solid		clean	solid	clean
" 24	18—A	2 clean		2 solid		clean	solid	clean
" 28	19—A	2 clean		2 solid		clean	solid	clean
" 29	20—A	2 clean		2 solid		clean	solid	clean
" 30	21—A	2 clean		2 solid		clean	solid	clean
" 31	22—A	2 clean		2 solid		clean	solid	clean
Aug. 4	23—A	2 clean		2 solid		clean	solid	rancid
" 5	24—A	2 clean		2 solid		clean	solid	clean
" 6	25—A	1 clean	1 weedy	2 solid		clean	solid	clean
" 7	26—A	1 clean	1 not clean	1 solid	1 gassy	clean	solid	clean
" 13	29—A	2 clean		1 solid	1 gassy	clean	solid	clean
" 14	30—A	2 clean		2 solid		clean	solid	clean
" 18	31—A	2 clean		2 solid		clean	solid	clean

SESSIONAL PAPER No. 15a

SUMMARY OF THE DEFECTS IN THE CURDS AND CHEESE FROM MILK TREATED IN FIVE DIFFERENT WAYS.

—	Milk aerated by dipping.	Milk run over an aerator.	Milk aerated and cooled.	Milk cooled with water in shotgun.	Milk cooled in tub of water.
No. curd tests	18	22	18	10	30
Not clean flavour	83·4 p. c.	68·2 p. c.	44 p. c.	10 p. c.	6·6 p. c.
Gassy texture	77·8 "	68·2 "	44 "	20 "	6·6 "
No. of curds	9	12	10	5	15
Not clean flavour	88·9 p. c.	50·0 p. c.	40 p. c.	00	00
Gassy texture	77·8 "	50·0 "	20 "	00	00
Cheese not clean flavour	77·8 p. c.	75·0 p. c.	60 p. c.	20 p. c.	13·3 p. c.

The milk cooled as shown in the last two columns was not dipped and scarcely ever stirred except to get the temperature. The covers were put on the cans immediately after milking was finished.

STARTERS.

We found it necessary to use one half of one per cent starter in nearly all the milk, to enable us to get the curds far enough advanced to leave them and go out to the farms to look after the milk in the evenings. Had we been able to make the cheese without using any starter, I am quite convinced we would have seen a greater difference in the curds and cheese from the different methods of handling the milk.

I would prefer using less than this amount of starter to get the best results. In a few cases, one per cent was used and the results were not satisfactory, as the cheese were inclined to be short and acidy, and lacked that nutty, cheesy flavour which is so desirable.

PER CENT FAT IN THE MILK.

Babcock tests were made of the milk in each vat every day, and during the full series of experiments only twice was there any difference in the tests, showing that the treatment the milk received at the farm had little or no effect upon the per cent of butter fat.

The per cent of fat varied a good deal during the three months. On June 25th, the vats tested 3·4 per cent, June 26th, 3·5 per cent. The test remained at 3·4 from June 27th to July 3rd. July 9th, it tested 3·6 per cent, remaining at this point, with the exception of one day, until July 24th, when it dropped to 3·5 and tested 3·5 per cent with the exception of three times until August 11th, when it again tested 3·6 for two days, varying between 3·6 per cent and 3·9 per cent up to August 25th. The average test for the season was 3·54 per cent.

ACIDITY OF THE MILK.

The per cent of acid in the milk receiving exactly the same treatment at each farm, varied considerably. The milk from the Hyslop farm nearly always showed the higher acidity.

The average tests for the season were as follows:—

	Evening's Milk.		Mixed Milk.		Morning's Milk.
	A	B	A	B	—
Hyslop's.	·169	·174	·170	·171	·165
Condie's.	·160	·162	·166	·168	·160

The average temperature and acidity of the milk when delivered at the factory was:—

	Temperature.	Acidity.
4 lots in rusty cans, no aeration or cooling	68·2*	·168
21 lots aerated without cooling	70·9	·169
20 lots cooled without aeration	67·3	·165
10 lots aerated and cooled	65·3	·165

Average loss of butter fat in the whey from different methods of treating the milk at the farms.

Milk put in rusty cans, no aeration or cooling	·233%
Milk aerated without cooling	·219%
Milk aerated and cooled	·211%
Milk cooled without aeration. Cans covered	·203%

AVERAGE POUNDS OF MILK PER POUND CHEESE.

We have considerable data in connection with this phase of the subject, but we feel on account of using small quantities of milk, our figures are not as reliable as we would desire. We believe as correct results may be obtained from small quantities of milk as from large in relation to flavours in the milk, curd and cheese, but are of the opinion that to get reliable information in regard to the yield of cheese the work should be done in the ordinary factory vats.

SUMMARY.

The results of the experiments may be summarized as follows:—

1. It is very clear that the safest method of caring for milk intended for cheesemaking is to cool it slightly as soon as possible after milking and then keep it covered over night. In cool weather there is sufficient reduction of temperature through the medium of the cool air, but when the air is warm, cold water or water and ice is necessary to remove the heat from the milk.

2. The aeration of milk by dipping or by running it over an aerator, will not give a uniform quality of milk. The same can be said of aeration and cooling combined. Aeration alone will not keep the milk sweet enough for cheesemaking purposes during the hot summer months.

3. It is practically impossible to determine by general observation that any place is free from the conditions which produce bad results in the aeration of milk. Milk aerated in a certain place one evening may produce a clean flavoured curd; exactly the same treatment in the same place the next evening, or a week after, may produce quite the opposite result, although to all appearances the climatic conditions and surroundings were equally good on both occasions.

4. The milk which was cooled with as little exposure to the air as possible and covered when milking was finished, produced the best curds and cheese.

* Nights very cool.

5. Placing the milk cans in cold water was found to be advisable for the following reasons: (*a*) There were no extra utensils used which required washing. (*b*) With the water tank arranged as recommended, no time was spent in taking care of the milk after milking was finished. (*c*) No water was used in excess of what was necessary for watering the stock. (*d*) The milk was in a uniformly good condition regardless of weather conditions.

6. The cooling was effected in some cases by placing a vessel containing cold water or ice directly in the milk, but that plan carries the objection that it is the outside surface of this vessel which comes into contact with the milk and that surface is hard to keep clean.

7. Putting the covers on the milk cans almost immediately after milking was finished, gave better results than leaving them off all night.

It is claimed that objectionable feed flavours are eliminated to some extent at least by the process of aeration. The experiments did not cover that point, but even if it is admitted that aeration does remove feed flavours, there is abundant proof that the process almost invariably affords an opportunity for the infection of the milk with germs of fermentation, which may in the end produce more objectionable results than the feed flavours which it is sought to remove.

Further work on a somewhat different plan will be necessary to determine the loss in yield of cheese when the milk is overripe and gassy.

ACKNOWLEDGMENTS.

I am very much indebted to Mr. J. G. Bouchard and Mr. I. Trudel, for their interest and valuable assistance in carrying on the work. Also to Mr. R. Perry, manager of the cheese factory, who in many ways gave us useful help during the summer.

I am also very grateful for the exceedingly kind treatment we received at the homes of Mr. Hyslop and Mr. Condie. They were at all times willing to assist us and made the work at the farms very pleasant.

GEO. H. BARR.

SOME STATISTICS OF THE DAIRY TRADE.

CHEESE IMPORTS INTO THE UNITED KINGDOM, FROM BRITISH TRADE RETURNS, YEARS ENDED DECEMBER 31ST.

From	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Canada	1,547,739	1,709,565	1,848,112	1,900,556	1,858,767	1,925,835	1,698,847	1,541,502
United States	540,102	390,479	360,916	224,830	175,256	233,445	114,260	105,555
Holland	315,923	284,020	302,503	233,601	214,033	229,341	241,551	279,101
New Zealand	79,094	51,875	56,339	84,947	78,626	126,216	192,301	264,995
Other countries	103,979	110,273	126,458	110,363	116,000	123,957	125,234	114,633
Total	2,586,837	2,546,212	2,694,358	2,554,297	2,442,682	2,638,794	2,372,233	2,306,086
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Canada	59·8	67·2	68·6	74·4	76·1	73·0	71·7	66·8
United States	20·9	15·3	13·4	8·8	7·2	8·8	4·8	4·6
Holland	12·3	11·2	11·2	9·1	8·7	8·7	10·2	12·1
New Zealand	3·0	2·0	2·1	3·3	3·2	4·8	8·1	11·5
Other countries	4·0	4·3	4·7	4·4	4·8	4·7	5·2	5·0
Total	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0

BUTTER IMPORTS INTO THE UNITED KINGDOM, FROM BRITISH TRADE RETURNS, YEARS ENDED DECEMBER 31ST.

From	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Russia	378,452	490,091	484,328	404,717	461,140	606,549	657,649	639,118
Sweden	180,212	191,591	212,232	206,791	188,209	182,803	226,740	238,929
Denmark	1,597,186	1,703,032	1,771,654	1,708,619	1,630,363	1,675,761	1,818,811	1,857,103
Germany	26,983	26,375	12,507	4,080	5,372	10,701	7,297	3,195
Netherlands	293,912	393,261	343,761	252,262	209,897	195,366	168,496	244,356
France	311,601	414,240	454,088	371,061	348,442	319,401	281,306	394,612
United States	150,126	54,458	42,405	68,754	84,874	157,312	1,063	39,540
Australia	248,168	80,397	121,165	480,778	450,203	545,827	598,986	409,106
New Zealand	167,343	157,993	249,879	294,982	300,418	311,672	313,863	221,395
Canada	215,588	285,765	185,437	268,607	292,117	190,968	34,753	47,877
Other countries	128,319	177,730	183,238	180,354	176,741	140,898	101,192	115,590
Total	3,702,890	3,974,933	4,060,694	4,241,005	4,147,866	4,337,258	4,210,156	4,210,821
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Russia	10·2	12·3	11·9	9·5	11·1	14·1	15·6	15·2
Sweden	5·1	4·8	5·2	4·9	4·5	4·2	5·4	5·7
Denmark	43·1	42·8	43·4	40·3	39·3	38·6	43·2	44·1
Germany	0·7	0·6	0·3	0·1	0·1	0·3	0·2	0·1
Netherlands	8·1	9·9	8·5	5·9	5·1	4·5	4·0	5·8
France	8·4	10·4	11·2	8·7	8·4	7·1	6·7	9·7
United States	4·0	1·4	1·1	1·6	2·0	3·6	.....	0·9
Australia	6·7	2·2	3·2	11·3	10·8	12·5	14·2	9·5
New Zealand	4·5	3·9	6·1	6·9	7·5	7·2	7·5	5·3
Canada	5·8	7·2	4·6	6·3	7·0	4·4	0·8	1·1
Other countries	3·4	4·5	4·5	4·5	4·2	3·5	2·4	2·6
Total	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0

TABLE IV.—TOTAL EXPORTS OF CHEESE AND BUTTER IN FISCAL YEARS 1880 TO 1909 INCLUSIVE.

Butter.			Cheese.		
Year.	Quantity.	Value.	Year.	Quantity.	Value.
Years ending June 30.	Lbs.	$	*Years ending June 30.*	Lbs.	$
1880	18,535,362	3,058,069	1880	40,368,678	3,893,366
1890	1,951,585	340,131	1890	94,260,187	9,372,212
1891	3,768,101	602,175	1891	106,202,140	9,508,800
1892	5,736,696	1,056,058	1892	118,270,052	11,652,412
1893	7,036,013	1,296,814	1893	133,946,365	13,407,470
1894	5,534,624	1,095,588	1894	154,977,480	15,488,191
1895	3,650,258	697,476	1895	146,004,650	14,253,002
1896	5,889,241	1,052,089	1896	164,689,123	13,956,571
1897	11,453,351	2,089,173	1897	164,220,699	14,676,239
1898	11,253,787	2,046,686	1898	196,703,323	17,572,763
1899	20,139,195	3,700,873	1899	189,827,839	16,776,765
1900	25,259,737	5,122,156	1900	185,984,430	19,856,324
1901	16,335,528	3,295,663	1901	195,926,397	29,696,951
1902	27,855,978	5,660,511	1902	200,946,401	19,686,281
1903	34,128,944	6,954,618	1903	229,099,925	24,712,943
1904	24,568,001	4,724,155	1904	233,980,716	24,184,566
1905	31,764,303	5,930,379	1905	215,733,259	20,300,500
1906	34,031,525	7,075,539	1906	215,834,543	24,133,169
Years ending Mar. 31.			*Years ending Mar. 31.*		
1907 (9 months)	18,078,508	4,011,609	1907 (9 months)	178,141,567	22,066,584
1908	4,786,954	1,068,703	1908	189,710,463	22,887,237
1909	6,326,355	1,521,436	1909	164,907,139	20,384,666

TABLE V.—DETAILED STATEMENT OF EXPORTS OF CHEESE IN FISCAL YEARS 1902 TO 1909 INCLUSIVE.

(Years ending June 30, 1902 to 1906, and years ending March 31, 1907 to 1909.)

To	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
	$	$	$	$	$	$	$	$
Great Britain	19,620,239	24,620,604	24,099,004	20,174,211	24,300,908	21,909,879	22,763,736	20,268,166
Australia	6,862	6,913	6,247	5,411	5,350	245	525	223
British Africa	868	2,514	7,559	10,612	16,623	18,261	16,362	12,466
B. W. Indies	18,542	44,674	34,253	36,176	25,509	13,666	27,533	26,940
B. E. Indies	60	40	315	62	20			
British Guiana	1,833	2,165	1,193	2,571	3,860	3,143	6,228	4,452
Other British Possessions	746	553	216				9	1
Hong Kong		161	1,253	1,079	1,029		851	2,452
New Zealand	216	983	1,039	1,642	1,795	1,690	1,362	549
Newfoundland	20,100	21,334	21,754	35,171	30,992	37,748	35,792	41,163
Belgium			10	22	287		2,080	
Argentina		14						
Cuba	350	331	211	102	811		57	
China	1,409	1,734	1,899	2,013	2,195	2,206	1,572	568
Danish West Indies	332	2,037	1,936	2,046	2,056	1,568	1,985	1,937
France			44	700	7,203		10	81
Japan	821	1,076	1,609	759	775	1,071	1,444	2,200
Philippine Islands		289	100					
St. Pierre	158	120	356	341	875	318	190	364
United States	12,038	7,779	5,386	14,182	16,082	6,900	17,732	19,428
Dutch West Indies	538							
Norway and Sweden				104	994			
Germany	1,179	170		361		54	3	
Bermuda				12,595	14,033	9,080	9,245	3,174
Dutch Guiana		15	23	18	13	9		
Egypt		30						
Mexico			159	329	1,594	630	158	499
French West Indies		7						
Central America				80			347	3
Holland					97	116		
U. S. of Colombia					68			
Other countries							6	
Totals	19,686,291	24,712,943	24,184,566	20,300,500	24,433,169	22,006,584	22,887,237	20,384,666

TABLE VI.—DETAILED STATEMENT OF EXPORTS OF BUTTER IN FISCAL YEARS 1902 TO 1909, INCLUSIVE.

(Years ending June 30, 1902 to 1906; years ending March 31, 1907 to 1909.)

To	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1906.
	$	$	$	$	$	$	$	$
Great Britain	5,159,300	6,554,014	4,400,774	5,568,999	6,802,003	3,805,925	823,761	1,273,484
British West Indies	71,816	112,968	127,790	80,323	87,085	59,313	85,371	95,370
British Guiana	6,796	7,565	6,412	8,929	11,654	8,113	12,861	7,711
Other British Possessions	284	72					5	
Hong Kong								
Newfoundland	47,066	69,017	88,422	32,387	48,283	56,516	34,931	51,552
China	78	141	1,763	562	761	5,041	1,319	
Cuba	243	202	796	658	285	1,034	720	96
Danish West Indies	1,581	6,077	5,868	4,473	4,560	3,664	4,939	4,418
French West Indies		1,020						
Germany	101	13	25,644					
Hawaii		115						
Hayti		38						
Japan	1,013	1,816	6,027	6,496	9,373	9,062	4,258	3,019
St. Pierre	27,102	28,655	26,598	21,827	17,668	17,615	18,749	14,740
United States	41,149	10,225	6,497	70,580	33,965	3,539	38,899	18,216
British Africa	12	133,958	16,417	4,914	2,056	265		22,458
Mexico		4,685			1,268	484	265	660
Brazil	1,608	9,084						
Dutch West Indies	2,040							
U. S. Colombia	92	1,175	2,272	200	1,747	2,145		1,105
Australia	260	6,187						
Bermuda				50,482	47,045	33,900	33,177	14,273
France			14	14,440	4,155			
San Domingo		1,351						
Holland			8,175	13,680				
Venezuela		6,240						
Belgium			10	116				
Central America			686	1,062	3,431	4,932	9,448	,074
Corea				15				
Dutch Guiana				186	30	40		
Turkey				50		21		
Porto Rico					170			
Panama								4,229
Austria-Hungary								1
Totals	5,660,541	6,954,618	4,724,155	5,930,379	7,075,539	4,011,609	1,068,703	1,521,436

IN MEMORIAM.

The Canadian dairy industry lost during the year one of its greatest friends and promoters, in the person of the Hon. Thomas Ballantyne, who departed this life on the 29th of June last.

Born in Peebles, Scotland, on August 13, 1829, Mr. Ballantyne came to Canada with his parents in 1850, and settled in the Township of Downie, Perth county, Ontario. He taught school for a time, but abandoned the profession and took up farming, and early saw the advantages of dairying.

Mr. Ballantyne was one of the pioneers of the factory system of cheesemaking in Canada. He was the founder of the Black Creek cheese factory, in 1866, and the name of that factory has ever since been synonymous with highest quality in Canadian Cheddar cheese. Always progressive, he would allow none but the most approved practices to be followed in his factory.

Mr. Ballantyne did not confine his interest in dairying to his own factory or district. As long as his health permitted, he was always ready to devote his time and money to any movement which had for its object the uplift of the dairy industry. No dairy convention in Western Ontario seemed to be complete without his presence. The heartiness of his greetings and the cordiality of his friendship were equalled only by the vigour and positiveness of his condemnation of anything which he believed to be against the best interests of dairying. He always knew his own mind and was ready to back his convictions against all comers.

Mr. Ballantyne by no means confined his activities to the dairy industry, for he had a long and distinguished public career. In his younger days he served in the municipal council of Downie township as reeve, and afterwards represented the riding of South Perth in the Ontario Legislature continuously for eighteen years, and from 1890 to 1895 was speaker.

THE COW TESTING ASSOCIATIONS.

INTRODUCTION.

The cow testing work continues to grow and the interest in this movement has increased during the year, but not as much as its importance would seem to warrant, especially in view of the facilities which are afforded for having the testing done with a minimum expenditure of labour and money.

The testing of dairy cows is now being carried on to a greater or less extent in all important dairying countries, but in no other instance is the government of the country giving so much assistance as the government of Canada is.

We find that a good many farmers begin the work only to drop it after a few months' trial. One cannot help thinking at times that the ultimate result might be better if the plan of the work put a larger share of the cost on the owner of the herd. A person is likely to take a keener interest in a matter of this kind if he has to bear the expense. In the United States, Denmark and other countries, the farmers pay practically the whole cost of doing the testing. There is no doubt if that plan had been followed here a much smaller number would have taken it up to begin with, but it is possible that their greater enthusiasm and keener interest would have been a better foundation on which to build.

The following tables and comparisons compiled from the records by Mr. C. F. Whitley, contain much interesting and valuable information.

GENERAL.

The work of the cow testing associations was continued on much the same lines as in previous years. A full description of the plan is published in bulletin No. 12. Members are expected to take weights and samples of each cow's milk right from the

beginning to the end of her lactation period. Owing to various circumstances, a certain proportion of the records can be had for only six months. Although numbers of these have been received, they are not included in the accompanying tables. The great majority of the members fully understand that the complete record, not a rough guess, of each cow is necessary in order to determine which are the profitable individuals in the herd.

The testing of all samples was done free of cost to the members through this branch paying the maker at the local cheese factory or creamery. Inspectors were constantly visiting the various associations, both to exercise supervision over the testing and to awaken further interest amongst the farmers in the locality. As opportunities offered during the year meetings were called for the discussion of the association work. During the winter months each association held its regular annual meeting, attended by an officer of the Dairy Division, for a general review of the season's activities and for the election of officers.

In 1908, there were 72 regular associations and 15 smaller 'groups' organized in five provinces, with 751 members owning 7,243 cows.

The movement in favour of this co-operative work originated in 1895 in Denmark, where there are now 479 associations. There are also found 204 similar organizations in Sweden, 120 in Norway, 50 in Germany, 40 in Finland, besides many in Russia, Holland, Austria, Scotland, New Zealand and the United States.

There is scarcely any branch of farm operations receiving as much attention to day as the testing of dairy cows. The newspapers abound with references to this long neglected but vitally important undertaking.

Correspondence with the members regarding various points of the work has greatly increased, and one most encouraging feature is the number of inquiries that are received for aid in organizing associations.

A great many members, the really good dairymen, act in a missionary spirit, and endeavour to spread a knowledge of the many advantages of cow testing; these men are cordially thanked for their assistance to the efforts of the department.

The daily weighing of each cow's milk is a practice largely on the increase. Record forms are supplied on application.

INSTANCES OF THE VALUE OF RECORDING.

At Lotbinière, Que., one member with seven cows averaged 4,824 pounds of milk, and 187 pounds of fat in 1906, but in 1908, his seven cows averaged 5,674 pounds of milk, and 222 pound fat. This is an increase of over 17 per cent in the yield.

A member in the Spring Creek, Ont., association had an average yield of 4,850 pounds of milk from his eleven cows in 1906, but in 1908, the yield was 6,380 pounds or an average increase of 26 per cent.

In the St. Armand, Que., association one herd shows 4,334 pounds of milk as the average of 1906, and 5,507 pounds in 1908, an increase of 27 per cent.

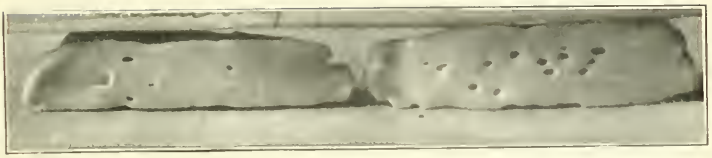
In the Mansonville, Que., association, a member shows an increased yield of milk from the eight cows in his herd, between 1906 and 1908, of 28 per cent.

Another member of the association at Lotbinière, Que., with six cows has improved from the average in 1906 of 4,042 pounds of milk to 5,344 pounds of milk in 1908, or an increase of 32 per cent.

Another herd near Harrietsville, Ont., averaged 5,374 pounds of milk per cow in 1905, but in three years there has been an increase of 34 per cent, bringing the average yield in 1908 up to 7,243 pounds of milk.

In 1906, one member at Cowansville, Que., wrote to this department, 'My cows are fed no grain, but give me two years longer and I hope to improve their milking quality considerably.' In 1908, his ten cows averaged 40 per cent more milk and fat.

One member near Woodstock, Ont., states that in 1903, he was obtaining 4,360 pounds of milk from each of his nine cows, but, having followed the lessons learned from regular weighing, he has increased the efficiency of his herd considerably, for



A B

Fig. 1.—Showing the curd test from the evening milk treated on the Hyslop Milk Stand as follows: both milk cans were set in tubs of cold water.

'A' milk was not aerated, and the curd was clean in flavour and free from gas.

'B' milk was dipped for about 20 minutes; the curd had quite a few gas holes, and was not as clean in flavour as the 'A' curd.

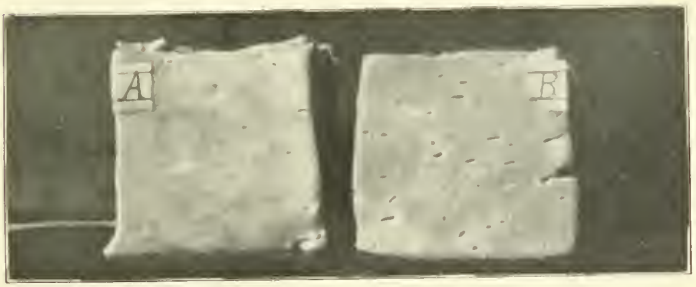


Fig. 2.—Showing the condition of the curd just before milling on August 6.

'A' curd was free from gas and clean in flavour. The milk was cooled by setting the milk cans in cold water, and was not aerated.

'B' curd was quite gassy and not clean in flavour. The milk was taken from the factory vat after all the milk was received.

Fig. 1.—Showing the condition of the curd just before milling on Aug. 7.
'A' curd was clean in flavour and free from gas. The milk was put in good cans and cooled without aeration.
'B' curd was very gassy and had a nasty dirty flavour. The milk was put into rusty cans and was not cooled or aerated.

Fig. 2.—Showing condition of curds just before milling on Aug. 11.
'A' curd was free from gas and clean in flavour. The milk was cooled to 86½° immediately after milking by putting a shotgun can of water in it. When this temperature was reached the water was removed and the cover put on the can.
'B' curd was quite gassy and not clean in flavour. The milk was run over an aerator. The temperature of the milk when milking was finished was 86½°. The cover was then put on the can. The temperature of the air during milking was 68°.
Note.—Only the evening's milk was treated as stated in explanation of cuts.

in 1908, he obtained from eleven cows an average yield of 7,006 pounds of milk. This is an increase of 60 per cent.

One member in the Milton, Ont., association writes: 'Two years ago when we began keeping records and testing, our average was not much above 3,000 pounds of milk per cow; the average now is 5,000 pounds of milk, which is an increase of 66 per cent in two years.

Another Quebec record full of encouragement for every farmer is that of a herd near St. Hyacinthe, where twenty cows had an average yield of 6,835 pounds of milk, sold at 20 cents per gallon, or $146.70 per cow. Feed is estimated at $50 per cow, giving a net profit of $96.70 per cow. Three years ago the average yield of this herd was only 4,000 pounds of milk per cow. The milk of each cow is weighed daily. It has paid with this herd, and it will abundantly repay every dairy farmer.

In 1905, a herd of twenty cows near Tyrrell, Ont., had an average yield of 6,372 pounds of milk; in 1906, 7,639 pounds; in 1907, 8,325 pounds; in 1908, 8,825 pounds. The increase, therefore, between 1906 and 1908, is 2,453 pounds of milk per cow, or over 38 per cent. Viewing cash receipts, it is found that whereas in 1905 the owner was getting $52.72 per cow, in 1908 he received $76.76 per cow, or from the herd of twenty cows, a total of four hundred and eighty dollars more income than three years ago. Such results should satisfy every farmer that it pays to go in for cow testing.

A herd near Boston, Ont., brought in only $23.82 as the average earning of nine cows in 1904, but in 1908, the owner received $57.92 per cow, or considerably more than twice as much.

These instances are put on record so that dairy farmers generally may awaken to what this movement means to them personally as well as to the Dominion at large.

SOME STARTLING CONTRASTS.

In the Milton, Ont., association the total yield of two 3-year old cows in the same herd, both calved in March, for the full lactation period of eleven months stands:—

Cow A, 7,460 pounds of milk, 306·8 pounds of fat, average test 4·1.

Cow B, 4,975 pounds of milk, 188·5 pounds of fat, average test, 3·7.

This shows a difference of 2,485 pounds of milk and 118·3 pounds of fat. Presuming that butter was worth 22 cents per pound, cow A earned thirty dollars more than cow B.

In the Central Smith, Ont., association, two cows in the same herd show just the same difference, 118 pounds of fat in ten months. Both calved in April. The one with the higher yield was six years old, and the one with the lower yield ten years old. Think of it, thirty dollars more income from a cow side by side with another in the same stable! Verily, there is need of weeding-out. But to proceed.

In the Spring Creek, Ont., association, one six year old cow in eleven months gave 11,035 pounds of milk and 430 pounds of fat. Another cow of the same age gave in the same time, 6,440 pounds of milk and 226 pounds of fat. With milk at $1 per 100 pounds, this indicates a difference in the earning power of these two cows of over forty-five dollars.

Two cows in the Central Smith association also show a difference of over forty-six dollars. One cow, age six, gave 10,615 pounds of milk and 382 pounds of fat, while a ten year old, also calved in the spring, gave only 5,950 pounds of milk and 254 pounds of fat.

Whether or not the Osler age limit is to be applied to dairy cows depends probably on the individual productive powers of the animals, for in the one herd in the Spring Creek association, is found a 2-year old that gave 8,730 pounds of milk and 324 pounds of fat in ten months, while a 16-year old gave but 5,920 pounds of milk and 214 pounds of fat.

Two 4-year olds in the North Oxford association are in remarkable opposition ; both calved in March and milked ten months; one gave 11,945 pounds of milk and 367 pounds of fat; and the other gave 5,650 pounds of milk and 172 pounds of fat. With milk at $1 this indicates a difference in cash receipts of almost sixty-three dollars.

The Innerkip association presents two 7-year olds; both calved in March and milked ten months; one gave 12,227 pounds of milk and 452 pounds of fat; the other contented herself with yielding 5,435 pounds of milk and 211 pounds of fat. Allowing $1 per hundred for milk, the one cow earned sixty-seven dollars and ninety-two cents more than the other.

During May, 78 cows in the East and West Oxford association gave 74,113 pounds of milk and 2,419 pounds of fat; but 81 cows in the Milton association gave 20,000 pounds of milk and 450 pounds of fat less.

Similarly with two associations in Quebec in May: 107 cows at Marbleton gave 60,230 pounds of milk and 2,080 pounds of fat; but 111 cows at Ormstown gave 113,065 pounds of milk and 3,885 pounds of fat.

In June, 92 cows at Henryville, Que., gave 67,285 pounds of milk and 2,352 pounds of fat; while 96 cows at Brigbt, Ont., gave 91,365 pounds of milk and 3,206 pounds of fat.

During July, 121 cows at St. Antoine, Que., gave 85,400 pounds of milk and 3,206 pounds of fat; and 121 cows at Warsaw, Ont., gave 101,475 pounds of milk and 3,071 pounds of fat, or twenty-five thousand pounds more milk, but 135 pounds less of fat.

In August, 105 cows at Central Smith, Ont., gave 87,290 pounds of milk, containing 2,898 pounds of fat; and 103 cows at St. Armand, Que., gave only 46,805 pounds of milk and 1,910 pounds of fat.

September shows 68 cows at New Glasgow, P.E.I., giving 43,900 pounds of milk and 1,601 pounds of fat; while 67 cows at Cowansville, Que., gave 30,255 pounds of milk and 1,315 pounds of fat. During the same thirty days, 71 cows at St. George, Ont., gave 35,370 pounds of milk and 1,233 pounds of fat; and 72 cows at Black Creek, Ont., gave 59,290 pounds of milk and 2,052 pounds of fat.

In October, 178 cows at Innerkip, Ont., gave 91,350 pounds of milk, or 16,350 pounds more than the combined efforts of 181 cows at St. Bruno, St. Prosper, Jonquières, Lotbinière and Dairy Valley in the Quebec list of associations.

In November, 1908, the 624 cows that were recorded in the British Columbia associations gave a total yield of 315,771 pounds of milk, or within 230 pounds of the total yield of the 1,051 cows in the Quebec associations.

In December, 110 cows in one association in British Columbia, gave 55,305 pounds of milk; but 112 cows in a second association in the same province gave only 41,785 pounds of milk, or 13,520 pounds of milk less.

NECESSITY OF SYSTEMATIC TESTING.

In the course of a great many meetings of dairy farmers, the question frequently arises, why should my cows be tested? Probably one of the best answers to this is found in the journal of the Bath and West and Southern Counties Society (England), in an article dealing at length with the testing of a herd in 1908. Some important conclusions are: (1) 'The milk of individual cows varies within very wide limits between morning and evening, and from day to day, it being almost impossible to find any two consecutive days on which the milk of any given cow shows exactly the same composition. (2) The mixed milk of a number of cows also varies considerably from day to day. (3) These variations can be observed when there are no disturbing influences at work, such as changes of food, changes of weather, or other known causes. They cannot at present be satisfactorily explained and must be set down to the individuality of the cow.'

Further, as bearing on the necessity for continuous testing instead of relying on a test of short duration, the record of a cow at Madison, Wisconsin, is noteworthy. In a seven days' test this cow gave twenty pounds of butter fat, but in considering the full year she stood last but one in a list of twenty-seven, and gave only $24.99 net profit. One year even is not enough. In four successive years, one cow stood in 9th place, then 7th, then 2nd, then 26th. Such variations call for continuous records.

VARIATIONS IN HERD YIELDS.

In one British Columbia association, the average yield of 250 cows for one month was 532 pounds of milk, 4·3 test, 22·9 pounds of fat. One herd of eleven cows stands almost exactly at the average yield. One herd of nine cows averages as high as 800 pounds of milk and 35 pounds of fat, including two yields of 1,110 and 1,125 pounds of milk from two cows two months after freshening. No fewer than fourteen out of twenty-three herds and 150 out of 250 cows are below the average yield in both milk and fat.

Included in the 150 with the low average yield, are several cows of mature age that two months after freshening gave only 500 pounds of milk and 16 pounds of fat. On the other hand, several cows are included that gave over 1,000 pounds of milk two months after freshening, and several furrow cows with particularly high tests, 7 and 8 per cent of fat. The highest average is 800 pounds of milk and 35 pounds of fat. The variations run all the way from eight and a half to thirty-seven pounds of fat as the average yield of the separate herds, the one, thus, more than four times as much as the other.

These yields, it is understood, are just for one month; to estimate the variations in actual returns per cow, the full twelve months should be considered.

AVERAGE COWS AND INDIVIDUAL PROFIT.

Averages alone can never satisfy the inquiring mind of the real dairyman. In a division of this vast Dominion on a basis of the present population, it is estimated that each person would average 400 acres as his or her share. Some men own more than that; thousands do not own a square yard.

Cows differ, so do automobiles; some of the latter are built for hauling, cream, some for exclusive speed, some for the height of fashion, and some for steady every-day service; that is the kind of cow the average factory patron requires, the cow that will stick faithfully to business and give every-day results for 300 days in the year. The average cow scarcely attains this standard, but the herd can be vastly improved by checking up each individual. Wisdom dictates that this be done; progress demands it; experience counsels it; and judgment accepts it, proceeding at once to take weights and samples.

In almost any month in the year when, for instance, the average yield of all the cows recorded in an association is 663 pounds of milk and 26 pounds of fat, the extremes run something like this. One herd of nine cows averages 444 pounds of milk and 18 pounds of fat, but another herd of sixteen cows averages 819 pounds of milk and 33 pounds of fat. Further, and of far more importance, is the variation between individual cows in the same herd. Thus it is found that in the herd of nine cows with the average of 444 pounds of milk, the best cow gave 990 pounds of milk and 33·6 pounds of fat, but the lowest yield was only 350 pounds of milk and 16 pounds of fat. And in the herd of sixteen cows, six individuals gave over 1,000 pounds of milk, one giving as much as 1,170 pounds, but the smallest yield was only 470 pounds.

Such examples show clearly how imperative it is for every owner of a herd of dairy cows to have definite information as to the production of each single cow in the herd. An 'average' is too indefinite altogether when individual excellence is needed.

Average yields of herds may not appear to differ much, but when total production is considered the lesson is brought home.

In September, the total production in seven different associations ran as follows:

	Pounds of Milk.
1. 55 cows, New Brunswick	21,945
2. 54 " Ontario	23,460
3. 54 " New Brunswick	26,815
4. 55 " Quebec	27,595
5. 53 " New Brunswick	28,280
6. 56 " Quebec	30,675
7. 53 " Ontario	34,644

Thus the 53 cows in No. 7 association produced actually 12,699 pounds of milk more than the 55 cows in No. 1 during the same month.

Every farmer should be interested in recording the production of each one of his cows. Herein lies the great difference between the man who is simply keeping cows and the man who is a real dairyman. The interest taken in one's work saves from the millstone of drudgery. Record work does not imply a burden of arithmetic; but the average common cow of the country is over-burdening with her mathematics, for she adds to a man's trouble, subtracts from his physical energy, divides his powers, multiplies his labour, takes interest from his work and discounts his chance of success.

So many farmers have made the remark at meetings 'My cows are as good as the average' that a word or two on this topic seems opportune. If the owner means that his cows are 'good enough' then the statement cannot be controverted too quickly. Such a thought can only have a retarding influence. Is not improvement necessary? If there is the tendency to drift along with 'average' cows, how can there be general improvement? An average profit of $8 or $12 per cow is not enough. Average, or medium quality cows, animals that are not expected, apparently, to give much milk, or good rich milk, or any respectable combination of quantity and quality, are eminently unsuitable in every way for the dairymen of Canada. Supplying no incentive for improvement, cows that are merely average will keep a man contented with low yields and small cheques; harmful as they must be in their influence, and with a steady tendency to deteriorate, they are almost a curse. Because his cows bring in as much as some neighbour's, or as much as the average of the district, are such cows really 'good enough' for the ordinary farmer?

A complete reversal of this average current opinion is necessary. But the cows will not improve unless they are helped, unless the intelligence and ambition of their owners can be awakened and put into daily practice. If it is true that the scrub horse costs virtually as much to keep as the animal of good breeding, it is more emphatically true and apparent as applied to cows. Practically the same amount of work on the farm is obtained from the horse of lower breeding, but as applied to yields of milk from dairy cows the principle is of far more vital force and profitable application. Given a certain number of cows as the maximum that can be kept on a farm of a certain size, the sooner an intelligent selection of the best is made, based on the record of each one in the herd, the quicker will the cash receipts be augmented, and a solid foundation laid for the maintenance of a highly profitable herd.

A herd with a better uniform level of production should be every farmer's aim. It is perfectly evident from the fact of the extremes of production, those cows at the top and those at the bottom of the lists being so very far apart, that but very slight attention has been paid by the majority of our dairymen to this momentous issue. An 'average' is simply the cold arithmetical mean of dissimilar numbers. For instance, the average of 4, 13, 9 and 6 is the total of these four numbers divided by 4, or 8. But the two extremes in this simple list of four figures, are very far from the average 8. So it is with too many of our herds, there are some excellent individuals

giving up to 13,000 pounds of milk, but it does not necessarily follow that the average production of the herd is 8,000 pounds.

As an illustration of what is meant by more uniform production, a herd in the Cowansville association may be referred to. During eight months of 1908 the twelve cows comprising the herd had an average production of 5,986 pounds of milk and 236 pounds of fat. The point to notice is that every single cow gave over 5,100 pounds of milk and over 210 pounds of fat. Such a herd is profitable because there are no poor individuals to eat up profits, or to pull down unduly the general average.

Another point must be noticed. In table 55, giving the production of eighteen herds of ten cows and over in Quebec, the average yield of 236 cows stands at 4,323 pounds of milk. But no fewer than 121 cows, or more than half, give less than the average. Further, actually sixteen out of the eighteen herds contain cows giving less than the average. Only two herds, therefore, are well up above the average, and show fairly uniform production. Again, just five herds are of such poor quality that every single cow in each of the five herds stands at less than the average yield of 4,323 pounds of milk. It is precisely these poor cows that it is hoped to discover by means of weighing and sampling. They persistently pull down fairly good average yields, and it is a question whether they can show any satisfactory reason for continuing to exist. If they can be improved by better handling, what a revolution it would cause in many districts if all such poor cows were even brought up to the level of only the 'average' production. We have too many of these poor cows; but let the determined effort now be made to improve.

RAPID SHRINKAGE IN MILK YIELD SHOULD BE AVOIDED.

The general opinion seems to prevail with the average farmer that because flies are bad and pasture is drying up, therefore the cows are bound to shrink heavily in the yield of milk about July and August. Methods and usages of twenty-five years ago do not necessarily aid the dairyman who to-day wants a large cheque from the factory every month, or who has contracted to supply so much milk or cream. Without entering into a discussion of all the causes of rapid shrinkage, or the remedies, suffice it to mention one item of paramount importance, the necessity of a supply of corn ensilage for summer feeding. It is invaluable.

When a cow produces 1,200 pounds of milk in June and only 870 pounds in July, indicating a shrinkage of 27 per cent, something is lacking. When another cow in the same herd drops from 765 pounds in July to 425 pounds in August, a shrinkage of 44 per cent, is it not time to think? When a third cow in the same herd falls from 960 pounds in July to 385 pounds in August, a shrinkage of 60 per cent, it surely should indicate to the owner that his cows need a few things which he ought to provide.

The persistent milker is a treasure.. The habit should be induced in every way possible.

In another herd close by the one referred to above, one cow gave 916 pounds of milk in June and 797 pounds in July, a shrinkage of only 13 per cent. A second cow gave 649 pounds in June and 610 pounds in July, only 5 per cent shrinkage.

FEEDING FOR PROFIT.

When a cow is well fed she should produce milk and fat profitably. In Western Ontario is a herd that has not been noted for large production, but a little while ago the sixteen year old boy on the place begged for the special handling of one mature cow. He had an idea she would respond to good feeding. Note the result. At the date of writing, she is still milking and likely to be for a fortnight at least. Up to the present she has given over 20,000 pounds of milk with an average test of 3·2 and over 640 pounds of fat. In June, she gave over 71 pounds of butter fat and as high as 96 pounds of milk in one day. During that month, she was fed daily seven pounds

of bran, seven pounds of oats, eight pounds of sugar beet meal, two pounds of oil meal, forty pounds of ensilage, with all the green alfalfa and pasture that she wanted. Pasture was dry very early and flies were bad, but she kept on milking because she was fed well. Did it pay? Even assuming that her feed will cost $100 for the year, her milk has brought in $275.

There are unquestionably scores and probably hundreds of dairy cows in the Dominion that would bring in good money for their owners if they were given the opportunity, if they were fed for production of larger quantities. Why should we jog along contentedly with cows in the 6,000, 5,000 and 4,000 pounds of milk class, when they could be fed to give 7,000, 10,000 and 15,000 pounds of milk with fat in proportion?

Too many of our cows are simply comfortably browsing in the residential section. They should be moved up to the business district of the community. Make them pay.

Whether a cow produces milk at a cost of 50 cents or $1.30 per 100 pounds and butter fat at a cost of 10 cents or 28 cents per pound, is a matter of the utmost importance to the dairyman. It is impossible, absolutely impossible, to ascertain the cost unless records of each cow are carefully kept.

The twenty-six cows in the dairy herd at the Ontario Agricultural College, Guelph, are reported as giving an average profit of $31.83 over cost of feed.

A member of an Ontario association writes: 'Most of our milk is retailed at 5 cents a quart, so that as our cows average 5,000 pounds of milk, we realize $100 per cow. Estimating feed and care at $40 per cow, we find $60 as the average net profit per cow.'

One member in Oxford county is to be congratulated on a herd of sixty-five cows that averaged 6,210 pounds of milk which sold for $75. The cows are not forced, but are fed liberally with oats and barley chop, bran and shorts.

For the thirty days ending July 23, 1907, fifteen cows gave 10,140 pounds of milk, which sold at 92 cents per 100 pounds, making a total of $93.23. The average production of milk per cow was 676 pounds with a value of $6.21. After a few weighings this farmer thought he could do much better, and he decided to feed his cows the next winter and have them freshen a little later, that is in May. He fed his cows $15 worth of oats before putting them on pasture and got rid of some poor cows. He is still weighing, and his record for the thirty days ending July 23, 1908, shows that these fifteen cows gave 14,160 pounds milk, which brought in 91 cents per hundred pounds, giving a total of $128.85. The average production per cow was 944 pounds of milk. The difference in the value of milk produced in July, 1907, and July, 1908, was $35.57.

One member stated at a meeting that he had bought six cows from a dealer in December, giving $32 for the whole six, as they had been intended for the canning factory by the dealer. The member, thinking them likely looking animals, fed them pretty well and the same six cows gave him $300 worth of milk in seven months, and he resold them at $28 each.

In one association in Ontario, a cow gave 9,200 pounds of milk in six months. Assuming feed cost $21, the profit is $71 with milk at $1 per 100. A second cow in the association gave only 2,200 pounds of milk, and with feed charged at only $18 made only $4 profit. Thus the first cow gave seventeen times as much profit as the second.

TABLE I—Average Monthly Yields, 1908.

Month and Province.	Total Number of Cows.	Average Yield.		
		Lbs. Milk.	Test.	Lbs. Fat.
January—				
British Columbia	473	583	4·1	24·2
Ontario	302	544	3·5	19·3
Quebec	217	346	4·3	15·1
Prince Edward Island	33	258	3·7	9·5
General Average	1,025	511	3·9	20·3
February—				
British Columbia	614	605	4·1	24·8
Ontario	289	590	3·5	20·8
Quebec	124	512	3·9	20·1
Prince Edward Island	29	246	3·4	8·5
General Average	1,056	580	3·9	22·7
March—				
Ontario	403	632	3·5	21·9
British Columbia	674	604	4·0	23·9
Quebec	183	478	4·1	19·5
Prince Edward Island	19	413	3·0	12·6
General Average	1,279	592	3·8	22·5
April—				
Ontario	940	718	3·3	23·7
British Columbia	807	692	3·9	27·0
Quebec	601	544	3·6	19·8
Prince Edward Island	33	446	3·4	15·5
General Average	2,381	661	3·6	23·7
May—				
Ontario	1,612	812	3·3	27·2
British Columbia	949	771	3·8	29·9
Quebec	1,647	666	3·7	24·3
Prince Edward Island	40	436	3·6	15·8
General Average	4,248	743	3·5	26·5
June—				
Ontario	1,962	903	3·3	30·1
Prince Edward Island	106	779	3·5	27·3
New Brunswick	813	733	3·6	26·3
British Columbia	923	733	3·9	28·6
Quebec	2,526	725	3·7	26·8
Nova Scotia	26	719	4·1	29·7
General Average	6,356	783	3·5	28·0
July—				
Ontario	2,149	760	3·4	25·3
Prince Edward Island	123	709	3·5	24·8
Quebec	2,494	626	3·7	23·5
British Columbia	921	624	4·0	25·2
New Brunswick	887	589	3·6	21·3
General Average	6,626	665	3·6	24·0
August—				
Ontario	2,038	725	3·4	25·0
Prince Edward Island	125	609	3·8	23·0
British Columbia	811	556	4·4	22·6
Quebec	2,130	540	3·9	21·2
New Brunswick	935	504	3·9	19·4
General Average	6,039	600	3·7	22·4

TABLE I—Average Monthly Yields, 1908—*Concluded.*

Month and Province.	Total Number of Cows.	Average Yield.		
		Lbs. Milk.	Test.	Lbs. Fat.
September—				
Ontario	1,849	612	3·6	22·2
Prince Edward Island	127	600	3·7	22·7
British Columbia	747	522	4·2	22·1
Quebec	2,041	515	4·2	21·0
New Brunswick	808	457	4·0	18·2
General Average	5,572	544	3·9	21·2
October—				
Ontario	1,504	515	3·9	20·0
Prince Edward Island	106	511	4·0	20·1
British Columbia	662	492	4·3	21·1
Quebec	1,486	413	4·4	18·2
New Brunswick	489	393	4·1	16·1
General Average	4,247	461	4·1	19·1
November—				
British Columbia	624	506	4·2	24·4
Ontario	897	451	3·9	17·4
Prince Edward Island	81	413	4·0	16·5
New Brunswick	172	338	4·6	15·7
Quebec	1,051	300	4·7	14·0
General Average	2,825	400	4·2	16·9
December—				
British Columbia	590	533	4·1	22·1
Ontario	617	459	3·8	17·3
Prince Edward Island	76	415	4·1	17·3
New Brunswick	143	377	4·7	17·9
Quebec	438	349	4·5	15·8
General Average	1,864	448	4·1	18·5

These average yields for each month correspond very closely with the averages of 1907.

PERCENTAGE OF FAT.

In 1908, the number of cows tested each month in the Dominion varied from 1,025 in January to 6,626 in July, with a total of 43,518 tests made during the year. The total yields were 26,594,990 pounds of milk and 998,751 pounds of fat, or an average of 3·76 per cent of fat.

TABLE II—Average Per Cent of Fat, 1908, by Provinces.

	Total Number of Tests.	Total Milk.	Total Fat.	Average Test.
		Lbs.	Lbs.	p.c. fat.
Ontario	14,553	10,054,709	348,671·6	3·46
Quebec	14,938	8,327,903	324,944·0	3·90
British Columbia	8,795	5,395,521	217,989·4	4·04
New Brunswick	4,247	2,264,327	86,434·1	3·81
Prince Edward Island	898	496,910	18,427·3	3·70

In this connection the following paragraph from *La Laiterie*, of April 3, 1909, is of interest:

> 'About 600 dairy farmers in convention at Lille (France) have decided on the adoption of three standards of milk for sale: (1) Rich milk, containing at least 3 per cent of fat, (2) Medium milk, testing from 1 to 3 per cent of fat, (3) Poor milk, testing from 0·15 to 1 per cent of fat.'

The following table shows the average percentage of fat in milk from cows in five provinces during 1908.

TABLE III—Average Percentage of Fat, 1908.

Month.	Ontario.		Quebec.		New Brunswick.		Prince Edward Island.		British Columbia.		Total.	
	Number of Cows.	Average Test.	Number of Cows.	Average Test.	Number of Cows.	Average Test.	Number of Cows.	Average Test.	Number of Cows.	Average Test.	Number of Cows.	Average Test.
January	302	3·5	217	4·3	....	....	33	3·7	473	4·1	1,025	3·9
February	289	3·5	121	3·9	....	....	29	3·4	614	4·1	1,056	3·9
March	403	3·5	183	4·1	....	....	19	3·0	674	4·0	1,279	3·8
April	944	3·3	601	3·6	....	....	33	3·4	807	3·9	2,381	3·6
May	1,612	3·3	1,647	3·7	....	....	40	3·6	949	3·8	4,248	3·5
June	1,962	3·3	2,526	3·7	813	3·6	106	3·5	923	3·9	6,356	3·5
July	2,140	3·4	2,494	3·7	887	3·6	123	3·5	921	4·0	6,626	3·6
August	2,038	3·4	2,130	3·9	935	3·9	125	3·8	811	4·1	6,039	3·7
September	1,849	3·6	2,011	4·2	808	4·0	127	3·7	747	4·2	5,572	3·9
October	1,504	3·9	1,486	4·4	484	4·1	106	4·0	662	4·3	4,247	4·1
November	897	3·9	1,051	4·7	172	4·6	81	4·0	624	4·2	2,825	4·2
December	617	3·8	438	4·5	143	4·7	76	4·1	590	4·1	1,864	4·1

TABLE IV—Comparative Yields for a Period of Production of 7, 8, 9, 10, 11 and 12 Months, 1908, in Five Provinces.

Months.	Ontario.				Quebec.				British Columbia.				New Brunswick.				Prince Edward Island.			
	Number of Cows.	Average Yield of Milk.	Average Test.	Average Yield of Fat.	Number of Cows.	Average Yield of Milk.	Average Test.	Average Yield of Fat.	Number of Cows.	Average Yield of Milk.	Average Test.	Average Yield of Fat.	Number of Cows.	Average Yield of Milk.	Average Test.	Average Yield of Fat.	Number of Cows.	Average Yield of Milk.	Average Test.	Average Yield of Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
7	122	4,520	3·4	152·8	100	3,755	4·0	148·7	72	4,215	4·0	172·0	73	3,135	4·2	131·7	11	3,710	3·7	139·1
8	187	5,272	3·5	184·2	271	4,381	4·0	171·7	63	4,463	4·0	177·4	2	4,302	3·3	144·1	13	4,711	3·7	176 3
9	193	6,073	3·4	209·8	236	4,918	4·0	195·3	39	5,057	4·1	206·7	.....	.....	.....	.....	15	4,491	3·9	175·7
10	82	7,413	3·5	258 3	36	5,028	3·7	199·5	24	6,694	3·8	255·9	.....	.....	..	.....	5	5,538	3·7	204·6
11	18	6,297	3·5	218·4	2	6,713	4·1	279·7	15	6,442	4·4	280·5	.....	.....	.....	.....	.....	.....	.....	.....
12	11	7,729	3·6	275·7	11	6,580	4·3	285·2	54	7,045	4·2	296·1	.....	.....	.....	.....	5	5,578	3·6	201 0

This tabular statement of milk production for periods of seven to twelve months includes many cows which were still milking at the end of twelve months' continuous production.

The totals for seven, eight and nine months include cows whose records were sent in for these periods only, and are therefore not to be taken as totals of full lactation periods. Such totals are given in the following table:—

TABLE V—Comparative Yields of Cows for Full Period of Lactation, by Provinces, 1908.

Number of Months.	Ontario.				Quebec.				British Columbia.				Prince Edward Island.			
	Number of Cows.	Average Yield of Milk.	Average per cent. Fat.	Average Yield of Fat.	Number of Cows.	Average Yield of Milk.	Average per cent. Fat.	Average Yield of Fat.	Number of Cows.	Average Yield of Milk.	Average per cent. Fat.	Average Yield of Fat.	Number of Cows.	Average Yield of Milk.	Average per cent. Fat.	Average Yield of Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
7	20	4,132	3·5	146·2	6	3,398	4·0	135·5	4	3,266	3·3	100·9	.....	.....	.....	.....
8	103	4,707	3 5	167·0	71	3,658	4·0	148·1	23	4,157	4·1	171·4	2	4,495	3·3	150·2
9	199	5,760	3·5	200·0	174	4,035	4·0	162·5	56	5,646	3·7	213·5	4	5,270	3·5	184·8
10	135	6,628	3·5	232·5	103	5,146	4·1	210·2	131	6,119	3·9	240·1	5	4,567	3·5	162·4
11	67	6,976	3·6	252·2	35	4,943	4·3	215·5	152	6,466	4·1	264·7	3	5,398	3·8	207·2
12	17	6,792	3·5	236·6	12	4,788	4·4	210·7	51	6,251	4·1	270·4	.....	.....	.....	.....

Table V gives at a glance some interesting comparisons between yields of cows, for the full period of lactation, in four provinces.

It will be noticed that while the larger proportion of the cows tabulated for Ontario and Quebec complete their milking period in nine months, those in British Columbia extend to it ten and eleven months. These cows milking during twelve months drop below the average yield of those milking during eleven months. One full month's rest is not too much.

British Columbia cows, as may be expected in an almost exclusively creamery section, make the best average as regards yield of fat.

While these averages do not disclose, in British Columbia for example, any higher yield than 6,466 pounds of milk, and 264·7 pounds of fat, several individuals gave over 300 pounds of fat, a few gave over 350 pounds of fat, while one cow is credited with 434 pounds of fat. Distinguished from these, are several that did not reach 200 pounds of fat, while one 7-year old has to her credit only 127 pounds of fat.

TABLE VI—Summary of Comparisons between Herds of Four Cows and over for a period of production of Eight Months in Three Provinces.

Province.	Number of Herds.	Number of Cows.	Average Yield per Cow in each Province.			Average Yield of Best Cow per Province.			Average Yield of Poorest Cow per Province.		
			Milk.	Test.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.
			Lbs.		Lbs.	Lbs.		Lbs.	Lbs.		Lbs.
British Columbia	8	41	4,485	3·8	171·5	5,799	3·5	204·6	3,456	3·9	134·6
Ontario	18	111	5,291	3·4	181·4	6,377	3·4	217·5	4,192	3·6	152·3
Quebec	32	197	4,437	3·9	171·4	4,969	4·0	197·0	3,523	3·9	138·5

TABLE VII—Summary of Comparisons between Herds of Ten Cows and over in Three Provinces for the Full Period of Lactation.

Name of Province.	Number of Herds.	Number of Cows.	Total Yield per Province.		Average Yield per Cow in each Province.			Average Yield of Best Cow per Province.			Average Yield of Poorest Cow per Province.		
			Milk.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.
			Lbs.	Lbs.	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.		Lbs.
British Columbia	12	248	1,413,253	53,808·4	6,042	3·6	246·8	8,446	3·8	321·6	4,067	4·1	178·9
Ontario	18	248	1,484,144	52,513·4	5,985	3·5	211·7	7,733	3·3	258·3	4,206	3·7	156·8
Quebec	18	236	1,020,346	42,208·3	4,323	4·1	178·8	5,595	4·0	225·7	3,016	4·3	129·9

A glance at this table reveals the excellent standing of the 218 cows in British Columbia. Though the average test is not nearly as high as in Quebec, the total yield of fat from eighteen fewer cows is 11,600 pounds more than from the 236 cows in Quebec. The difference between the average yield of the best cow in each herd (321 pounds fat) and the average yield of the poorest cow in each herd (179 pounds) is largest in British Columbia, being 142 pounds fat, as against 102 pounds fat for Ontario, and only 95 in Quebec. The average yields of the best cows only serve to emphasize the strong lead that British Columbia enjoys. The average yield of fat from the poorest cows in British Columbia is almost identical with the average yield of all the 236 cows in Quebec, 178·8 pounds of fat.

TABLE VIII—Average Production of 1,373 Cows for Full Period of Lactation in Four Provinces.

PROVINCE.	Number of Cows.	Average Yield of Milk.	Average Test.	Average Yield of Fat.
Ontario	541	5,832	3·5	205·7
Quebec	401	4,328	4·2	180·4
British Columbia	417	5,317	4·0	210·1
Prince Edward Island	14	4,932	3·6	176·1
Average for four Provinces	1,373	5,102	3·8	193·1

If it be granted that a cow to be profitable must yield at least 5,000 pounds of milk and 175 pounds of butter fat, then the above average of 1,373 cows cannot be counted very encouraging. At least two factors must be considered. 1st. In averages like this about half the number of cows concerned may safely be taken as falling as much below the average as the other half would be well above it. Hence lots of these cows do not any more than pay for their feed. 2nd. There are hundreds of cows whose owners do not want to have them recorded simply because the yield is known to be unsatisfactory. Our cows can do better; let us make them.

TABLE IX—Highest and Lowest Individual Records Full Period of Lactation, 1908.

PROVINCE.	Age of Cow.	HIGHEST YIELD.			LOWEST YIELD.			Age of Cow.
		Milk.	Test.	Fat.	Milk.	Test.	Fat.	
		Lbs.		Lbs.	Lbs.		Lbs.	
British Columbia	9	11,310	2·8	397·0	3,445	3·5	122·1	7
Ontario	10	13,742	3·4	472·4	3,385	3·5	118·0	5
Quebec	5	8,554	3·5	303·5	2,656	4·8	96·8	5
Prince Edward Island	9	5,827	3·6	210·3	3,810	3·5	134·1	11

If milk be valued at $1 per 100 pounds, and feed be estimated at only $35, it is somewhat a hard matter to discover where any profit accrues from the cows (not heifers) tabulated above under 'lowest yield.'

The high yields of milk and fat indicate how far the pendulum may swing in the opposite direction.

ASSOCIATIONS IN ONTARIO.

TABLE X—Total and Average Yield of 122 Cows Tested for Seven Months, 1908.

Associations.	Number of Cows.	Total Yield Milk.	Total Yield Fat.	Average Yield Milk.	Average Test.	Average Yield Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Bobcaygeon	6	24,428	798·5	4,071	3·2	133·0
Black Creek	13	64,189	2,208·9	4,937	3·4	169·9
Bright	4	20,745	706·5	5,186	3·4	176·6
Central Smith	8	41,950	1,383·8	5,243	3·3	172·9
Dalmeny	7	29,524	1,072·9	4,218	3·6	153·2
Gamebridge	6	23,599	780·0	3,933	3·3	130·0
Keene	5	21,284	746·8	4,257	3·5	149·3
Innerkip	16	78,795	2,847·0	4,906	3·6	177·5
Milton	5	19,250	620·8	3,850	3·2	124·1
North Oxford	7	38,455	1,221·4	5,493	3·1	174·4
Rockford	3	13,395	427·7	4,465	3·1	142·5
St. George	12	48,882	1,600·0	4,073	3·2	133·3
Star	3	13,542	425·4	4,514	3·1	141·8
Sheffield	8	33,587	1,124·1	4,198	3·3	140·5
Spring Creek	2	9,819	338·6	4,909	3·4	169·3
Warsaw	17	70,080	2,338·1	4,122	3·3	137·5
Total and Average Yield	122	551,524	18,640·5	4,520	3·4	152·8

The average yield of the 122 cows recorded for seven months is thus seen to be 4,520 pounds of milk and 152·8 pounds of fat. In the alphabetical list of associations, the extremes meet; the 3,850 pounds of milk average at Milton is contrasted with 5,493 pounds at North Oxford; and the yield of 177·9 pounds of fat at Innerkip, as an average of sixteen cows, shows a better yield than the five at Milton by 53·8 pounds of fat.

The records for seven months would have to be increased somewhat to form an idea of the actual total production for the full period of lactation. A careful scrutiny of Ontario records indicates that an addition of 6 per cent of the milk and fat produced in seven months would be a liberal allowance to add. This would give 4,790 pounds of milk and 161·9 pounds of fat.

TABLE XI—Total and Average Yield of 187 Cows Tested for Eight Months, 1908.

Associations.	Number of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield of Milk.	Average Test.	Average Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Bobcaygeon	3	11,230	495·5	4,743	3·4	165·1
Black Creek	19	103,228	3,707·4	5,433	3·5	195·1
Bright	5	31,395	1,132·4	6,279	3·6	226·5
Central Smith	17	99,191	3,326·4	5,834	3·3	195·6
Dalmeny	13	61,272	2,303·6	4,713	3·8	177·2
Kerwood	4	16,890	602·1	4,222	3·5	150·5
Keene	5	23,880	798·5	4,776	3·3	159·7
Innerkip	16	79,718	3,013·8	4,982	3·7	188·3
Milton	11	46,383	1,709·5	4,216	3·7	155·4
Morewood	15	86,278	2,997·8	5,750	3·4	199·8
North Oxford	8	47,544	1,506·8	5,943	3·1	188·3
Pine Grove	5	27,541	1,008·7	5,509	3·6	201·7
Rockford	9	54,913	1,828·0	6,101	3·3	203·1
St. George	15	71,888	2,535·2	4,792	3·5	169·0
Shearer	5	27,730	915·2	5,546	3·3	183·0
Star	8	39,029	1,247·7	4,878	3·1	155·9
Sheffield	3	17,420	570·9	5,806	3·3	190·3
Spring Creek	3	16,256	539·2	5,419	3·3	179·7
Warsaw	23	121,104	4,203·1	5,265	3·4	182·7
Total and Average Yield	187	985,873	34,441·8	5,272	3·5	184·2

The five cows at Bright average 2,054 pounds of milk more than the four at Kerwood.

If an addition of 5 per cent of the yield of milk and fat be made, so as to give the approximate yield for the full period of lactation, the figures would be 5,535 pounds of milk and 193 pounds of fat.

TABLE XII—Total and Average Yield of 153 Cows Tested for Nine Months, 1908.

Associations.	Number of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield of Milk.	Average Test.	Average Yield of Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Black Creek	8	59,300	1,951·8	7,412	3·2	243·9
Bright	29	177,157	6,388·2	6,109	3·6	220·3
Culloden	2	13,825	473·3	6,912	3·4	236·6
Central Smith	9	55,855	2,034·0	6,206	3·6	226·0
Dalmeny	2	11,205	382·1	5,602	3·4	191·0
Innerkip	24	136,442	4,563·4	5,685	3·3	190·1
Lorneville	8	32,125	1,127·5	4,015	3·5	140·9
Milton	5	20,610	795·0	4,122	3·8	159·0
North Oxford	6	43,165	1,337·7	7,194	3·0	222·9
Pine Grove	7	45,150	1,555·0	6,450	3·4	222·1
Rockford	14	109,091	3,484·3	7,792	3·2	248·8
Shearer	8	48,659	1,639·4	6,082	3·3	204·9
Star	6	32,138	1,085·6	5,356	3·3	180·9
Sheffield	4	20,204	767·0	5,051	3·8	191·7
Spring Creek	11	66,445	2,570·7	6,040	3·8	233·7
Warsaw	10	57,817	1,947·6	5,781	3·3	194·7
Total and Average Yield	153	929,186	32,102·6	6,073	3·4	209·8

A very creditable record is made by the fourteen cows at Rockford: their yield is 1,719 pounds of milk and 39 pounds of fat above the average of the 153 cows.

TABLE XIII—Total and Average Yield of 82 Cows Tested Ten Months, 1908.

Associations.	Number of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield Milk.	Average Test.	Average Yield Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Black Creek	8	59,300	1,951·8	7,412	3·2	243·9
Bright	8	58,810	2,100·2	7,351	3·5	262·5
Innerkip	19	131,197	4,586·3	6,905	3·5	241·3
Lorneville	5	30,384	1,028·2	6,077	3·4	205·6
Milton	6	37,187	1,417·2	6,198	3·8	236·2
North Oxford	3	24,960	757·4	8,320	3·0	252·4
Pine Grove	4	32 528	1,146·1	8,132	3·5	286·5
Rockford	9	81,557	2,779·6	9,061	3·4	308·8
Star	5	30,377	1,064·0	6,075	3·5	212·8
Spring Creek	15	121,631	4,360·6	8,108	3·6	290·7
Total and Average Yield	82	607,931	21,191·4	7,413	3·5	258·3

The nine cows at Rockford have an average yield of 2,984 pounds of milk and 103 pounds of fat in excess of the five cows at Lorneville.

If the Lorneville cows were even up to the average yield, they would have brought in $66 more to their owner.

TABLE XIV—Total and Average Yield of Eighteen Cows Tested Eleven Months, 1908.

Associations.	Number of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield Milk.	Average Test.	Average Yield Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Black Creek	2	24,070	828·5	12,035	3·4	414·2
Lorneville	5	21,830	771·2	4,366	3·5	154·2
Milton	2	10,725	441·2	5,362	4·1	220·6
North Oxford	2	16,122	508·9	8,061	3·1	254·4
Star	4	23,720	781·6	5,930	3·3	195·4
Sheffield	3	16,870	600·5	5,623	3·5	200·1
Total and Average Yield	18	113,337	3,931·9	6,297	3·5	218·4

The two cows at Black Creek are remarkably ahead of the rest in both milk and fat production.

TABLE XV—Total and Average Yield of Eleven Cows Tested Twelve Months, 1908.

Associations.	Number of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield of Milk.	Average Test.	Average Yield of Milk.
		Lbs.	Lbs.	Lbs.		Lbs.
Milton	6	38,495	1,392·0	6,415	3·6	232·0
Spring Creek	5	46,520	1,640·6	9,304	3·5	328·1
Total and Average Yield	11	85,015	3,032·6	7,729	3·5	275·7

This table is another example of how very unsatisfactory 'averages' sometimes are. It would not be difficult to select the better of these two herds.

TABLE XVI—Contrasts, Beaverton, Ont., Association.

	Milk.	Fat.	Age of Cow
	Lbs.	Lbs.	
Full period of lactation, best yield same herd	7,360	254·5	6 years.
Poorest yield	4,530	173·6	14 "

TABLE XVII—Comparisons between two herds in Black Creek, Ont., Association for Eight Months.

Herd.	Number of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	7	5,895	3·7	219·6	10	6,604	3·4	224·3	3	5,070	3·8	191·5
B	7	4,486	3·5	157·9	5	5,924	3·0	180·3	3	3,610	3·7	135·4

TABLE XVIII—Contrasts, Black Creek, Ont., Association.

——	Milk.	Fat.	Age of Cow.
	Lbs.	Lbs.	
7 months, Best yield	7,020	214·4	6 years.
" Poorest yield	3,520	132·8	10 "

TABLE XIX—Contrasts, Bobcaygeon, Ont., Association.

——	Milk.	Fat.	Age of Cow
	Lbs.	Lbs.	
7 months, same herd, Best yield	5,595	186·8	10 years.
" " Poorest yield	2,790	110·7	4 "
8 months, Best yield	5,190	175·4	3 years.
" Poorest yield	3,970	141·9	5 "

TABLE XX—Contrasts, Brighton, Ont., Association.

——	Milk.	Fat.	Age of Cow.
	Lbs.	Lbs.	
8 months, same herd, Best yield	7,250	256·4	5 years.
" " Poorest yield	4,010	209·2	8 "

TABLE XXI—Comparisons between herds in Central Smith, Ont., Association for Full Period of Lactation.

Herd.	Number of Cows.	HERD AVERAGE.			YIELD OF BEST COW.				YIELD OF POOREST COW.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	20	8,415	3·3	275·2	7	10,760	3·4	369·6	2	4,435	3·5	155·1
B	4	5,120	3·8	195·9	–	5,521	3·8	210·3	–	4,710	3·8	181·1
C	5	6,222	3·4	211·7	7	7,060	3·4	244·2	3	4,006	3·2	130·2

In herd C the 3-year-old cow gives 3,054 pounds of milk and 114 pounds of fat *less* than the 7-year-old in the same herd.

Such differences are indications of the necessity of ascertaining the present worth of each animal in the herd.

A Western Ontario Cheese Factory.

A combined Cheese Factory and Creamery in Quebec.

TABLE XXII—Comparisons between two herds in Central Smith, Ont., Association, for Eight Months, 1908.

Herd.	Number of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	8	5,893	3·2	191·2	8	7,260	2·9	212·1	3	3,300	3·4	112·3
B	5	5,515	3·4	189·1	8	6,950	3·2	225·3	12	4,520	3·6	163·2

In herd A the 8-year old cow gives 3,960 pounds of milk and 100 pounds of fat *more* than the 3-year-old during eight months.

TABLE XXIII—Contrasts, Central Smith, Ont., Association.

—	Milk.	Fat.	Age of Cow.
	Lbs.	Lbs.	
Full period of lactation, best yield	13,742	472·4	8 years.
" " poorest yield	4,600	151 9	7 "
8 months, best yield	7,918	268·4	6 "
" poorest yield	4,997	167·8	12 "
9 months, best yield	8,860	303·6	6 "
" poorest yield	4,685	187 5	10 "

The 7, 12 and 10-year old cows noted above seem to be producing scarcely enough to pay for the cost of feed.

Where does payment for labour, not to mention profit, appear?

TABLE XXIV—Comparisons between two herds in Culloden, Ont., Association for Full Period of Lactation.

Herd.	Number of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	12	6,053	3·3	203·4	7	6,719	3·2	217·5	4	4,855	3 1	157·1
B	4	5,066	3·3	171·6	14	6,175	2 9	178·3	2	3,675	4 1	150 6

NOTE.—The percentage of fat of poorest cow in herd B, young heifer, compares well with poorest 4-year-old in herd A. Testing is necessary as well as weighing.

TABLE XXV—Contrasts, Dalmeny, Ont., Association.

—	Milk.	Fat.	Age of Cow.
	Lbs.	Lbs.	
Full period of lactation, best yield	7,067	257·7	3 years.
" " poorest yield	3,239	123·8	5 "

TABLE XXVI—Comparisons between herds in Innerkip, Ont., Association for Full Period of Lactation, 1908.

Herd.	Number of Cows.	HERD AVERAGE.			YIELD OF BEST COW.				YIELD OF POOREST COW.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	13	4,831	3·8	183·6	6	6,000	3·4	202·1	15	3,024	3·9	117·7
B	13	5,167	3·8	199·2	10	6,400	3·4	219·0	3	2,540	3·4	85·7
C	12	5,752	3·6	210·5	8	6,795	3·6	243·7	10	4,953	3·5	177·3
D	7	4,203	3·9	163·1	8	5,135	3·4	175·2	3	2,920	3·5	103·4
E	7	10,377	3·3	347·5	7	12,227	3·7	452·3	2	8,528	3·3	286 3
F	5	5,568	3·1	174·7	8	7,190	3·2	234·8	2	3,210	2·8	90·7

A remarkably good showing is made by herd E; seven cows average 10,377 pounds of milk and 347·5 pounds of fat, standing head and shoulders above the other herd averages.

This herd is of fairly even production, for the poorest yield of any cow is 8,528 pounds of milk and 286 pounds of fat, considerably better than the yield of any in the column headed 'best cow.'

TABLE XXVII—Contrasts, Innerkip, Ont., Association.

—	Milk.	Fat.	Age of Cow.
	Lbs.	Lbs.	
Full period of lactation, best yield	12,227	452·3	7 years.
" " poorest yield	2,540	85·7	3 "
Full period of lactation, 2 herds, 7 cows each, best yield	10,377	347·5	7 "
" " poorest yield	4,290	158·9	6 "
10 months, best yield	10,918	341·8	5 "
" poorest yield	4,770	182·8	9 "
9 months, best yield	8,345	254·7	5 "
" poorest yield	5,105	159·4	11 "

TABLE XXVIII—Comparisons between herds in Keene, Ont., Association for Full Period of Lactation.

Herd.	Number of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	6	7,874	3·3	261·4	6	9,169	3·2	290·1	8	6,296	3·7	231·0
B	7	5,128	3·4	175·8	-	7,045	3·2	226·0	-	2,820	3·5	99·7
C	6	6,107	3·1	191·7	13	7,515	3·1	233·1	4	3,415	3·2	110·7
D	8	5,266	3·3	172·8	9	7,010	3·3	230·8	4	4,064	3·3	135·1

Between an average of 261·4 pounds of fat and 172·8 pounds of fat in herds A and D, there is a difference of 88·6 pounds. If fat is valued at only 20 cents per pound, this means a difference of at least $17.20 income per cow during the year.

This, it will be noticed, is in a herd with a fairly good average yield and as much as 4,064 pounds of milk from the poorest cow.

TABLE XXIX—Contrasts, Lorneville, Ont., Association.

—	Milk.	Fat.	Age of Cow
	Lbs.	Lbs.	
Full period of lactation, best yield	8,030	238·0	6 years.
" " poorest yield	3,568	121·9	6 "
11 months, best yield	8,995	329·3	6 "
" poorest yield	2,670	94·9	5 "

TABLE XXX—Comparisons between two herds in Milton, Ont., Association for Full Period of Lactation.

Herd.	Number of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	6	6,310	4·2	263·5	10	7,815	4·9	308·8	3	4,603	5·7	262·0
B	6	7,360	3·5	255·1	5	9,370	3·2	302·7	7	6,178	3·6	227·1

The average yield of milk in these two herds differs by over 1,000 pounds, but between the best and poorest cow in each herd there is a difference of over 3,000 pounds.

TABLE XXXI—Contrasts, Milton, Ont., Association.

—	Milk.	Fat.	Age of Cow.
	Lbs.	Lbs.	
7 months, best yield	5,450	165·9	2 years.
" poorest yield	1,640	60·4	5 "
8 months, same herd, best yield	5,840	199·6	7 "
" " poorest yield	3,675	131·7	15 "
9 months, best yield	5,480	164·7	8 "
" poorest yield	2,930	138·4	12 "
Full period of lactation, best yield	9,370	302·4	5 "
" " poorest yield	4,545	167·4	8 "

The 15 and the 12-year-old cows noted above would seem to have passed their days of usefulness and profit, though now and then a high record from cows even older than these indicates that there is no hard and fast age limit; it is again the vital question of individuality.

TABLE XXXII—Comparisons between herds in North Oxford, Ont., Association for Full Period of Lactation, 1908.

Herd.	Number of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	16	7,646	3·3	250·8	4	11,945	3·1	367·0	3	4,705	3·2	151·3
B	4	6,910	3·1	214·2	6	7,222	3·0	212·1	5	6,502	3.1	203·7
C	5	7,595	3·1	232·7	4	9,640	3·0	287·6	4	5,659	3·0	171 7

Such good individual cows help the average herd production considerably. The record of herd A is commendable, namely sixteen cows with an average of 7,646 pounds of milk. Many of our farmers should take heart thereby.

TABLE XXXIII—Comparisons between herds in Pine Grove, Ont., Association for Full Period of Lactation.

Herd.	Number of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	6	5,973	3·4	202·3	9	7,565	3·0	231·1	8	5,232	3·4	176·3
B	8	5,107	3·4	174·7	7	5,655	3·5	200·5	8	4,160	3·7	154 3
C	8	3,970	3·2	126·7	–	4,830	3·1	150 7	–	3,430	3·0	100·3

Two thousand pounds of milk *more* as an average yield from a herd of six cows than from a herd of eight cows (herds A and C) is calculated to incite determined effort for improvement.

Between the 231 pounds of fat of the best cow and the 100·3 pounds of fat of the poorest there is a great gulf.

TABLE XXXIV—Comparisons of two herds in Rockford, Ont., Association for Full Period of Lactation.

Herd.	Number of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	7	6,668	3·0	203 5	5	7,620	3·0	228·0	4	4,710	3·1	146 3
B	6	8,617	3·5	307·1	4	9,843	3·6	342·5	7	7,477	3·4	251 6

The good herd average is evidently largely dependent upon having each member of the herd up to a good and uniform level of production. The poorest cow in herd B gives more butter fat than the best cow in herd A.

TABLE XXXV—Contrasts, St. George, Ont., Association.

——	Milk.	Fat.	Age of Cow.
	Lbs.	Lbs.	
8 months, best yield	6,726	241·5	8 years.
" poorest yield	3,065	111·7	12 "
7 months, best yield	7,340	217·7	10 "
" poorest yield	3,145	127·8	13 "

TABLE XXXVI—Comparisons between herds in Spring Creek, Ont., Association for Full Period of Lactation, 1908.

Herd.	Number of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.	Lbs.	Lbs.		Lbs.	Lbs.	Lbs.		Lbs.	Lbs.	Lbs.
A	10	6,777	3·6	243·0	8	9,534	3·4	324·3	3	5,062	3·7	189·4
B	12	5,575	3·6	202 9	10	9,435	3·2	303·2	7	4,300	4 6	197·1
C	13	7,502	3·7	276·0	6	9,824	3·3	323·1	10	4,890	4 5	210 6
D	12	7,049	3 8	266·0	8	9,820	3·3	330·5	7	4,040	3·5	145·0
E	14	5,767	3·8	219 3	8	6,775	3·6	245·1	10	4,350	4 0	172 1
F	5	5,286	3·5	184·4	10	6,327	3·2	205·4	3	3,740	3·8	143 8
G	4	6,552	3·7	244 6	5	8,330	4·0	335·4	old.	5,310	3 3	178·5
H	8	7,728	3·6	282·8	6	11,035	3·9	430·1	4	5,930	3·8	223 5

The average yield of herd H is almost 100 pounds of fat more than that of herd F. But even in herd H the best cow produces almost twice as much as the poorest cow.

TABLE XXXVII—Contrasts, Spring Creek, Ont., Association.

—	Milk.	Fat.	Age of Cow.
	Lbs.	Lbs.	
8 months, best yield	6,238	186·6	2 years.
" poorest yield	4,348	157·5	14 "
9 months, best yield	8,360	296·9	5 "
" poorest yield	3,860	183·9	10 "
10 months, same herd, best yield	11,390	427·1	8 "
" " poorest yield	7,480	236·0	7 "
12 months, best yield	13,890	444·3	7 "
" poorest yield	4,400	193·9	17 "
Full period of lactation, same herd, best yield	8,730	324·3	2 "
" " poorest yield	3,900	145·5	15 "
Full period of lactation, best yield	11,035	430·1	6 "
" poorest yield	3,910	145·5	15 "

In two cases in the above six contrasts does a 2-year-old heifer appear as the best cow in the herd, yielding considerably more than the 14 and 15-year-olds.

TABLE XXXVIII—Comparisons between herds in Warsaw, Ont., Association for Full Period of Lactation, 1908.

Herd.	Number of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.	Lbs.	Lbs.		Lbs.	Lbs.	Lbs.		Lbs.	Lbs.	Lbs.
A	12	5,654	3·2	181·1	9	6,740	3·2	216·0	9	4,700	3·3	157·5
B	4	5,222	3·3	173·6	9	6,330	3·2	204·8	6	4,175	3·3	140·6
C	4	4,293	3·5	151·6	8	5,765	3·0	173·4	9	3,753	3·4	128·8
D	8	4,585	3·5	163·0	10	5,115	3·1	159·1	3	3,707	3·9	145·0

Over one thousand pounds of milk is a large difference to find in the three cases above: (1) herd average, herds A and C, (2) best cow, herds A and D, (3) poorest cow, herds A and D.

TABLE XXXIX—Contrasts, Warsaw, Ont., Association.

—	Milk.	Fat.	Age of Cow.
	Lbs.	Lbs.	
Full period of lactation, best yield	6,740	216·0	9 years.
" poorest yield	3,753	128·8	9 "
7 months, best yield	6,635	202·6	8 "
" poorest yield	2,230	100·1	6 "
9 months, best yield	6,395	218·2	3 "
" poorest yield	4,385	170·9	12 "

TABLE—XL—Comparisons between 18 Herds of 10 Cows and over, in the Province of Ontario, for Full Period of Lactation in 1908.

Name of Associations.	Herd.	Number of Cows.	Total Yield of Herd.		Average Yield per Cow.			Average Milking Period in Months.	Average Age of Herd.	Yield of Best Cow.			Yield of Poorest Cow.		
			Milk.	Fat.	Milk.	Test.	Fat.			Milk.	Fat.	Age.	Milk.	Fat.	Age.
			Lbs.	Lbs.	Lbs.		Lbs.		Years.	Lbs.	Lbs.	Years	Lbs.	Lbs.	Years
Central Smith	A	20	168,300	5,504·8	8,415	3·3	275·2	9·4	7·5	10,760	369·6	7	4,435	155·1	2
"	B	10	52,341	1,772·1	5,234	3·4	177·2	8·9	6·9	6,455	220·0	–	4,161	151·7	4
Culloden	A	12	72,637	2,441·7	6,053	3·3	203·4	9·2	7·1	6,719	217·5	7	4,855	157·1	4
Morewood	A	23	104,649	3,777·4	4,550	3·6	164·2	8·2	6·6	5,770	197·3	6	2,216	81·5	2
Oak Leaf	A	21	99,024	3,515·6	4,715	3·5	167·4	9·7	6·7	5,561	188·7	7	3,990	161·4	15
Shearer	A	10	57,418	1,949·4	5,742	3·4	194·9	9·5	5·8	7,144	216·0	4	4,537	182·7	9
Warsaw	A	12	67,845	2,173·7	5,654	3·2	181·1	8·3	7·1	6,740	216·0	9	4,700	157·5	9
Spring Creek	A	10	67,769	2,430·3	6,777	3·6	243·0	9·6	6·2	9,534	324·3	8	5,062	189·4	3
"	B	12	66,909	2,434·6	5,575	3·6	202·9	8·4	7·7	9,435	303·2	10	4,300	197·1	7
"	C	13	77,199	2,767·2	5,938	3·6	212·9	10·5	4·2	7,410	245·2	5	4,520	171·1	3
"	D	13	97,531	3,587·7	7,502	3·7	276·0	10·0	6·7	9,824	323·1	6	4,890	210·6	10
"	E	12	84,594	3,191·7	7,049	3·8	266·0	10·2	5·9	9,820	330·5	8	4,040	145·0	7
"	F	14	80,741	3,070·9	5,767	3·8	219·3	10·6	10·6	6,775	245·1	8	4,350	172·1	10
North Oxford	A	16	122,344	4,013·5	7,646	3·3	250·8	10·0	4·7	11,945	367·0	4	4,705	151·3	3
Innerkip	A	13	62,802	2,387·7	4,831	3·8	183·6	8·6	6·3	6,000	202·1	6	3,024	117·7	15
"	B	13	67,177	2,589·6	5,167	3·8	199·2	8·5	7·0	6,400	219·0	10	2,540	85·7	3
"	C	12	65,840	2,379·2	5,487	3·6	198·1	9·0	6·3	6,105	220·9	5	4,410	158·2	5
"	D	12	69,024	2,526·3	5,752	3·6	210·5	9·4	9·0	6,795	243·7	8	4,953	177·3	10
Averages and Totals		248	1,484,144	52,513·4	5,985	3·5	211·7			7,733	258·3		4,206	156·8	

In this table No. 40, comprising some statistics of eighteen herds in Ontario associations for the full period of lactation, attention is arrested by the extraordinary differences revealed in the columns of total yields of milk and fat.

The ten cows in herd B, Central Smith, gave *less than one-third* the total weight of milk produced by the twenty cows in herd A. The thirteen cows in herd D, Spring Creek, gave 34,729 pounds of milk *more* than the thirteen cows in herd A, Innerkip. The twelve cows in herd C, Innerkip, gave 18,754 pounds milk *less* than the twelve cows in herd E, Spring Creek. Considered in cash, with milk at 1 cent a pound, these differences vary from $187 for the twelve cows, up to $320 for the ten-cow herd. When in the same association, therefore, the difference in the income from two herds varies by as much as $32 per cow it is assuredly high time for paying more attention to the latent possibilities of both the cows and their owners.

Eleven out of the eighteen herds average less than the 5,985 pounds of milk average yield of the 248 cows. Herd A at Central Smith is considerably above the average, with other good ones at Spring Creek and North Oxford.

The yields of the best cows also show great variations, from 5,561 pounds of milk and 188·7 pounds of fat all the way up to 11,945 pounds of milk and 369·6 pounds of fat. The low yield of 2,540 pounds of milk and only 85·7 pounds of fat from a 3-year-old does not shine in comparison.

The average yield of the poorest cow in each herd is 3,527 pounds of milk and 101·5 pounds of fat below the average yield of the best cow in each herd; in some herds this difference is greatly augmented, for instance in herd E at Spring Creek the 8-year-old best cow gives 5,780 pounds of milk and 185·5 pounds of fat *more* than the 7-year-old.

The high age of many cows in the list of poor individual yields is noteworthy. Does it not indicate that long before this some steps should have been taken to determine the production of cows 7, 9, 10 and 15 years old?

TABLE XLI—Comparisons between Herds of Four Cows and over, in the Province of Ontario for a period of Production of Eight Months, 1908.

Name of Associations.	Herd	Number of Cows.	Total Yield of Herd.		Average Yield per Cow.			Yield of Best Cow.				Yield of Poorest Cow.			
			Milk.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.
			Lbs.	Lbs.	Lbs.		Lbs.	Lbs.		Lbs.		Lbs.		Lbs.	
Morewood	A	15	86,258	2,997·8	5,750	3·4	199·8	7,180	3·2	234·0	5	4,164	3·6	150·4	2
North Oxford	A	5	35,334	1,104·7	7,067	3·1	220·9	8,440	3·0	255·4	–	6,495	3·2	208·3	5
Innerkip	A	5	27,047	885·1	5,409	3·2	177·0	6,040	3·1	188·7	8	4,931	3·3	160·5	3
"	B	4	20,165	924·2	5,041	4·5	231·0	5,745	4·1	279·7	–	4,455	5·2	232·9	–
Kerwood	A	4	16,890	602·1	4,222	3·5	150·5	4,600	3·7	171·2	9	3,860	3·7	142·9	10
Rockford	A	4	22,106	769·9	5,526	3·4	192·4	6,470	3·5	239·3	9	4,626	3·4	160·1	2
Milton	A	7	31,355	1,118·7	4,479	3·5	159·8	5,385	3·6	195·4	10	3,675	3·6	131·7	15
Pine Grove	A	4	21,564	807·6	5,391	3·7	201·9	6,150	3·3	201·6	6	4,944	3·4	166·5	4
Black Creek	A	7	41,265	1,537·2	5,895	3·7	219·6	6,604	3·4	224·3	10	5,070	3·8	191·5	3
"	B	7	31,402	1,105·3	4,486	3·5	157·9	5,924	3·0	180·3	5	3,610	3·7	135·4	3
Dalmeny	A	6	21,576	775·2	3,596	3·6	129·2	4,940	3·7	181·0	7	2,540	3·3	85·8	2
"	B	6	35,646	1,377·6	5,941	3·8	229·6	8,277	3·5	294·4	6	3,212	4·0	128·2	2
Warsaw	A	7	36,477	1,323·7	5,211	3·6	189·1	6,400	3·6	229·0	8	4,380	3·6	157·7	7
"	B	7	36,113	1,239·7	5,159	3·4	177·1	6,721	3·3	220·8	8	4,085	3·7	151·0	8
"	C	6	32,478	1,039·8	5,413	3·2	173·3	6,150	3·2	195·7	8	4,360	3·6	156·8	4
St. George	A	4	16,902	573·0	4,225	3·4	143·2	5,560	3·3	187·2	5	3,231	3·3	107·6	2
Central Smith	A	8	47,144	1,529·6	5,893	3·2	191·2	7,260	2·9	212·1	8	3,300	3·4	112·3	3
"	B	5	27,575	945·5	5,515	3·4	189·1	6,950	3·2	225·3	8	4,520	3·6	163·2	12
Averages and Totals	....	111	587,297	20,656·9	5,291	3·4	184·4	6,377	3·4	217·5	.....	4,192	3·6	152·3	.....

The four cows at St. George give only 573 pounds of fat in eight months, or 351 pounds less than the four cows at Innerkip. Similarly the four cows at Kerwood give 5,216 pounds of milk less than the four cows at Rockford.

The average yield of milk per cow for the 111 included in this table is 5,291 pounds, but ten out of the eighteen herds are above this average, the herd of five cows at North Oxford being conspicuous with an average of 7,067 pounds. There are also ten herds that average more than 184·4 pounds of fat, that at Innerkip making a good showing of 231 pounds

While the average yield of the best cow in each herd reaches 6,377 pounds of milk and 217·5 pounds of fat, the variations amongst these best yields are surprising; it is a long drop from 8,440 pounds of milk or 294·4 pounds of fat down to 4,000 pounds of milk and 171·2 pounds of fat.

In considering the yield of the poorest cow in each herd there will be noticed a considerable difference in the yields of the five heifers. Two very promising. The one at Rockford gives a better yield than the 10-year-old at Kerwood.

TABLE XLII—The yields of 573 individual cows for periods of 7, 8, 9, 10, 11 and 12 months in Ontario Associations, are classified as follows:—

Number of Months.	Total Yield of Milk in Pounds.												Total No. of Cows.	No. of Herds Represented.	No. of Associations.
	1,000 to 2,000 lb.	2,000 to 3,000 lb.	3,000 to 4,000 lb.	4,000 to 5,000 lb.	5,000 to 6,000 lb.	6,000 to 7,000 lb.	7,000 to 8,000 lb.	8,000 to 9,000 lb.	9,000 to 10,000 lb.	10,000 to 11,000 lb.	11,000 to 12,000 lb.	12,000 to 13,000 lb.	13,000 to 14,000 lb.			
	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.			
7	1	7	32	40	33	5	4	.....	.....	.....	.....	.....	.....	122	49	16
8	.....	2	22	53	62	37	7	4	.....	.....	.....	.....	.....	187	58	19
9	.....	3	6	20	49	40	19	10	5	1	.....	.....	.....	153	57	16
10	.....	.....	1	4	12	20	20	9	7	6	3	.....	.....	82	30	10
11	.....	2	2	2	4	3	1	1	1	.....	1	1	.....	18	10	6
12	.....	.....	.....	1	1	4	2	.....	.....	1	1	.....	1	11	4	2
Total number of cows.	1	14	63	120	161	109	53	24	13	8	5	1	1	573	.....	.....

It is satisfactory to note that out of the 573 cows included in this table 375, or 65 per cent, give yields of upwards of 5,000 pounds of milk.

Probably more would be included if the records of the 122 cows had been kept longer than seven months.

All members have been repeatedly, but are hereby again, urged to keep a record of each cow's production for the whole milking period. A knowledge of the total yield is necessary before profit can be determined.

TABLE XLIII—The yield of 541 individual cows for Full Period of Lactation in 7, 8, 9, 10, 11 and 12 months in Ontario Associations are classified as follows:—

Number of Months.	Total Yield of Milk in Pounds.													Total No. of cows.	No. of Herds Represented.	No of Associations.
	1,000 to 2,000 lb.	2,000 to 3,000 lb.	3,000 to 4,000 lb.	4,000 to 5,000 lb.	5,000 to 6,000 lb.	6,000 to 7,000 lb.	7,000 to 8,000 lb.	8,000 to 9,000 lb.	9,000 to 10,000 lb.	10,000 to 11,000 lb.	11,000 to 12,000 lb.	12,000 to 13,000 lb.	13,000 to 14,000 lb.			
	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.			
7	.....	4	4	10	.....	2	.....	.....	.....	.....	.....	.....	.....	20	15	8
8	1	1	14	58	19	7	3	.....	.....	.....	.....	.....	.....	103	39	15
9	.....	1	15	41	64	50	17	5	4	1	1	.....	.....	199	67	20
10	.....	.....	3	18	37	33	14	16	10	2	1	1	.....	135	49	16
11	.....	.....	1	6	12	16	19	6	4	1	1	.....	1	67	29	13
12	.....	.....	.....	1	4	6	3	2	1	.....	.....	.....	.....	17	10	5
Total number of cows.	1	6	37	134	136	114	56	29	19	4	3	1	1	541	.....	.....

All of these cows completed their lactation period in the number of months indicated.

Sixty-seven per cent, or 363 out of the 541 cows in the accompanying table, give yields of over 5,000 pounds of milk.

The work of these associations should speedily result in bringing a larger number into this desirable classification. This may confidently be expected, as the cows with the satisfactory records are being retained as foundation stock for good dairy herds.

TABLE XLIV—The yields in milk and fat of 27 individual 2-year-old heifers, for Full Period of Lactation in 1908, in the province of Ontario, are classified as follows:—

Total Yield of Fat in Pounds.	Total Yield of Milk in Pounds.								Total No. of Heifers.	No. of Herds Represented.	No. of Associations.
	1,000 to 2,000	2,000 to 3,000	3,000 to 4,000	4,000 to 5,000	5,000 to 6,000	6,000 to 7,000	7,000 to 8,000	8,000 to 9,000			
	No. of heifers.	No. of heifers.	No. of heifers.	No. of heifers.	No. of heifers	No. of heifers.	No. of heifers.	No. of heifers.			
75 to 100	1	2	1						4	4	4
100 " 125		1	2						3	3	2
125 " 150			2						2	2	2
150 " 175				4					4	4	4
175 " 200				2	5				7	6	5
200 " 225					2	1			3	4	1
225 " 250							1		1	1	1
275 " 300							1	1	2	2	2
300 " 325								1	1	1	1
Total number of heifers	1	3	5	6	7	1	2	2	27		

The twenty-seven heifers have been awarded a special tabulation in order to indicate what promising young stock there is in Ontario. There is no valid reason for remaining content with a 2,000 pound record, when twelve out of the twenty-seven heifers are seen to produce over 5,000 pounds of milk.

The good yields of butter fat are encouraging.

ASSOCIATIONS IN QUEBEC.

TABLE XLV—Total average yield of 100 cows tested Seven Months, 1908.

Associations.	No. of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield of Milk.	Average Test.	Average Yield of Fat.
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Bagotville	4	17,520	731·3	4,380	4·1	182·8
Chicoutimi	15	55,655	2,221·4	3,710	4·0	148·3
Cowansville	3	10,829	448·0	3,609	4·1	149·3
Dixville	6	22,130	852·1	3,688	3·8	142·0
Dairy Valley	5	13,867	493·1	2,773	3·5	98·6
Jonquières	17	69,740	2,930·7	4,102	4·2	172·3
Marbleton	3	7,655	342·3	2,551	4·4	114·1
North Hatley	6	20,575	858·3	3,425	4·1	143·0
Ormstown	17	74,259	2,707·7	4,368	3·6	159·2
St. Antoine	8	27,718	1,091·6	3,464	3·9	136·4
St. Emélie	8	23,065	973·0	2,883	4·2	121·6
St. Armand	5	20,405	745·1	4,081	3·6	149·0
Upton	3	12,060	475·1	4,020	3·9	158·3
Totals and averages	100	375,478	14,872·7	3,755	4·0	148·7

Although the average yield of the 100 cows recorded for seven months is 148·7 pounds of fat, the average of one association is as low as 98·6 pounds of fat in one case, but in another it is as high as 182·8 pounds.

TABLE XLVI—Total and average yield of 271 cows tested Eight Months, 1908.

Associations.	No. of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield of Milk.	Average Test.	Average Yield of Fat.
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Coaticook	2	9,162	310·1	4,581	3·3	155·0
Bagotville	7	33,625	1,366·9	4,803	4·0	195·2
Chicoutimi	12	42,205	1,761·2	3,517	4·1	146·7
Cowansville	2	6,805	297·5	3,402	4·3	148·7
Dixville	8	30,164	1,294·8	3,770	4·3	161·8
Dairy Valley	6	20,620	704·9	3,436	3·4	117·4
Henryville	4	15,399	563·8	3,849	3·7	140·9
Lotbinière	9	41,497	1,660·5	4,610	4·0	184·5
Mansonville	2	10,340	450·5	5,170	4·3	225·2
Marbleton	17	71,223	2,608·4	4,189	3·6	153·4
North Hatley	10	41,948	1,631·1	4,194	3·8	163·1
Ormstown	81	409,788	15,436·7	5,059	3·7	190·5
St. Prosper	10	49 805	1,977·5	4,980	4·1	197·7
St. Raymond	7	28,070	1,221·9	4,010	4·3	174·5
St. Edwidge	3	12,770	521·6	4,256	4·1	173·8
St. Antoine	38	175,356	6,966·3	4,614	3·8	183·3
St. Emélie	18	59,781	2,508·6	3,321	4·2	139·3
St. Armand	14	54,043	2,152·4	3,860	3·9	153·7
Upton	21	74,643	3,100·4	3,554	4·1	147·6
Totals and averages	271	1,187,244	46,535·1	4,381	4·0	171·7

The average yield of milk varies from 3,321 pounds to 5,059 pounds, and the average yield of fat varies from 117·4 pounds to 225·2 pounds.

TABLE XLVII—Total and average yield of 236 cows tested Nine Months, 1908.

Associations.	No. of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield of Milk.	Average Test.	Average Yield of Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Coaticook	2	8,837	301·8	4,418	3·4	150·9
Bagotville	3	13,819	612·2	4,606	4·4	204·0
Chicoutimi	6	26,468	1,092·6	4,411	4·1	182·1
Cowansville	16	72,257	3,113·6	4,516	4·3	195·2
Dixville	15	69,289	2,766·3	4,619	4·0	184·4
Dairy Valley	8	31,165	1,096·2	3,895	3·5	137·0
Henryville	2	6,988	270·7	3,494	3·8	135·3
Lotbinière	29	144,802	5,706·2	4,993	3·9	196·7
Mansonville	2	10,695	416 0	5,347	4·2	223·0
Marbleton	6	20,827	788 2	3,741	3·8	131·3
North Hatley	8	38,780	1,476·5	4,847	3·8	184·5
Ormstown	29	187,169	7,130·1	6,454	3·8	245·8
Pike River	4	20,490	770·9	5,122	3·7	192·7
St. Prosper	19	97,320	3,897·5	5,122	4·0	205·1
St. Raymond	3	13,408	568·4	4,469	4·2	189·4
St. Antoine	29	167,562	6,681·1	5,778	4·0	230·0
Ste. Emélie	29	112,561	4,775·5	3,881	4·2	164·1
St. Armand	12	58,441	2,274·6	4,870	3·9	189·5
Upton	14	59,650	2,350·1	4,260	3·9	167·8
Totals and averages	236	1,160,528	46,118·5	4,918	4·0	195·3

The twenty-nine cows at St. Emelie, have a very different total yield of milk from the twenty-nine cows at Ormstown; it amounts to a weight not lightly to be disregarded, 74,608 pounds.

TABLE XLVIII—Total and average yield of 36 cows tested Ten Months, 1908.

Associations.	No. of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield of Milk.	Average Test.	Average Yield of Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Lotbinière	3	16,905	712·0	5,635	4·2	237·3
Mansonville	2	10,440	449·9	5,220	4·3	224 9
Marbleton	9	45,165	1,721·2	5,018	3·8	191·2
North Hatley	4	18,225	751·7	4,556	4·1	187·9
Ormstown	2	15,613	553·9	7,806	3·5	276·9
Ste. Emélie	11	47,081	1,911·4	4,280	4·1	173·8
St. Armand	5	27,587	1,081·5	5,517	3·9	216·3
Totals and averages	36	181,016	7,181·6	5,028	3·7	199 5

TABLE XLIX—Total and average yield of two cows tested Eleven Months, 1908.

Cowansville	2	13,427	559·5	6,713	4 1	279·7

TABLE L—Total and average yield of eleven cows tested Twelve Months, 1908.

Cowansville	3	20,150	909 7	6,717	4 5	303 2
North Hatley	2	15,210	661·6	7,605	4·3	230·8
St. Armand	6	37,015	1,566·2	6,169	4 2	261·0
Total averages	11	72,375	3,137·5	6,580	4·3	285·2

TABLE LI—The yields of 656 individual cows for periods of 7, 8, 9, 10, 11 and 12 months, in Quebec Associations, are classified as follows:—

Number of Months.	Total Yield of Milk in Pounds.									Total No. of Cows.	No. of Herds. Represented.	No. of Associations.
	1,000 to 2,000 lb.	2,000 to 3,000 lb.	3,000 to 4,000 lb.	4,000 to 5,000 lb.	5,000 to 6,000 lb.	6,000 to 7,000 lb.	7,000 to 8,000 lb.	8,000 to 9,000 lb.	10,000 to 11,000 lb.			
	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.			
7	3	18	44	26	9	.....	.....	.....	.....	100	43	13
8	.....	21	79	108	43	16	3	1	.....	271	63	19
9	.....	3	53	77	62	25	15	1	.....	236	62	19
10	.....	.....	8	10	10	5	2	1	.....	36	15	7
11	.....	.....	.....	.....	.....	1	.....	1	.....	2	1	1
12	.....	.....	.....	2	3	3	.....	2	1	11	5	3
Total Number of Cows	3	42	184	223	127	50	20	6	1	656	.....	.....

From this table it is seen that only 204 cows, not quite one-third of the 656, gave yields of over 5,000 pounds of milk.

This table includes many cows which were still milking at the end of twelve months' continuous production.

The totals for 7, 8, 9, 10 and 11 months include cows whose records were sent in for these periods, and are not necessarily for the full period of lactation. Such totals are given in the table following.

TABLE LII—The yields of 401 individual cows for Full Period of Lactation of 7, 8, 9, 10, 11 and 12 months, in Quebec Associations, are classified as follows:—

Number of Months.	Total Yield of Milk in Pounds.								Total No. of Cows.	No. of Herds Represented.	No. of Associations.
	1,000 to 2,000 lb.	2,000 to 3,000 lb.	3,000 to 4,000 lb.	4,000 to 5,000 lb.	5,000 to 6,000 lb.	6,000 to 7,000 lb.	7,000 to 8,000 lb.	8,000 to 9,000 lb.			
	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.	No. of cows.			
7	.....	2	2	2	.....	.....	.....	.....	6	4	4
8	2	20	24	17	7	1	.....	.....	71	32	11
9	2	23	70	49	26	4	.....	.....	174	47	12
10	1	3	12	30	34	19	3	1	103	32	10
11	.....	.....	6	16	9	2	2	.....	35	15	7
12	.....	.....	3	5	3	1	.....	.....	12	4	4
Total number of cows	5	48	117	119	79	27	5	1	401	.....	.....

Thus, out of the 401 cows classified above, 119 cows, or 29 per cent, produced between 4,000 and 5,000 pounds of milk during their full period of lactation. Of these 119 cows, two were milking for seven months, seventeen for eight months, forty-nine for nine months, thirty for ten months, sixteen for eleven months, and five for twelve months.

The average period of lactation is between nine and ten months; 174 cows out of the 401 were milking for nine months and 103 for ten months.

TABLE LIII.—The yields in milk and fat of 22 individual 2-year-old heifers for Full Period of Lactation in 1908, in the province of Quebec, are classified as follows:—

Total Yield of Fat in Pounds.	Total Yield of Milk in Pounds.					Total No. of Heifers.	No. of Herds Represented.	No. of Associations.
	1,000 to 2,000 lb.	2,000 to 3,000 lb.	3,000 to 4,000 lb.	4,000 to 5,000 lb.	5,000 to 6,000 lb.			
	No. of Heifers.	No. of Heifers.	No. of Heifers.	No. of Heifers.	No. of Heifers.			
50 to 75	2					2	2	2
75 " 100	2	3				5	4	4
100 " 125		6				6	5	5
125 " 150			1			1	1	1
150 " 175			3	2		5	4	3
175 " 200				2		2	2	1
200 " 225					1	1	1	1
Total Number of Heifers	4	9	4	4	1	22		

Compare these yields with those of the heifers in table 107.

The following table shows at a glance the remarkable difference in averages and total yields between herds in various localities. Between the average of 118·5 pounds of fat per cow at Dairy Valley and the 209·3 pounds of fat at St. Prosper there is a wide variation, too wide; while as regards milk, the average of 6,012 pounds per cow at Ormstown is much more satisfactory than the 3,212 pounds per cow at Chicoutimi:—

The best cows average 197 pounds of fat, but the variation is from 151·5 at Chicoutimi to 256·7 at Ormstown. And while the average yield of best cows is 4,969 pounds of milk, one cow at Ormstown is up to 7,890 pounds, which again points to the necessity of considering individual ability and performance rather than average.

The yield of the poorest cow in each of the 32 herds averages 1,446 pounds of milk *less* than the yields of the best cow in each herd. The difference in fat is an average of 58·5 pounds, or at least $15 in the eight months.

Too many of the poorest yields cling round the low level of 110 pounds of fat. These cows cannot be worth keeping.

TABLE LIV.—Comparisons between herds of Four Cows and over, in the province of Quebec, for a period of production of eight months in 1908.

Name of Associations.	Herd No.	No. of Cows.	Total Yield of Herd.		Average Yield per Cow.			Yield of Best Cow.				Yield of Poorest Cow.			
			Milk.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age
			Lbs.	Lbs.	Lbs.		Lbs.	Lbs.		Lbs.		Lbs.		Lbs.	
Chicoutimi	A.	6	21,462	909·6	3,577	4·2	151·6	4,830	4·2	202·4	.....	2,695	4·5	122·4	5
"	B.	4	12,848	528·0	3,212	4·1	132·0	3,915	3·8	151·5	9	2,565	4·0	101·3	6
North Hatley	A.	4	14,710	542·6	3,677	3·7	135·6	4,170	3·7	153·0	.....	2,920	3·9	114·0	.....
Bagotville	A.	5	26,165	1,044·2	5,233	4·0	208·8	6,900	3·9	271·3	....	4,460	4·4	196·9	.....
St. Armand	A.	4	15,240	562·8	3,810	3·7	140·7	4,700	3·5	163·6	.....	2,820	4·0	113·2	.....
"	B.	5	20,432	792·7	4,086	3·8	158·2	5,570	4·0	220·1	.....	3,492	3·9	135·1	2
Upton	A.	6	19,728	869·4	3,288	4·4	144·9	3,872	4·4	172·5	4	2,400	4·4	106·1	3
"	B.	5	19,385	811·5	3,877	4·2	162·3	4,450	3·8	173·1	10	2,590	4·4	114·1	2
"	C.	8	28,400	1,127·2	3,550	4·0	140·9	3,930	4·2	164·6	.. .	2,660	4·0	107·6	.....
Dairy Valley	A.	4	14,370	474·2	3,592	3·3	118·5	4,520	3·1	141·1	12	2,920	3·7	109·1	3
Dixville	A.	5	17,500	776·9	3,500	4·4	155·4	4,140	4·1	170·2	13	2,780	4·5	125·9	2
St. Antoine	A.	7	29,099	1,117·9	4,157	3·8	159·7	4,855	3·8	186·2	11	2,792	4·5	126·1	3
"	B.	4	16,100	606·8	4,025	3·7	151·7	4,377	3·8	166·0	8	3,519	3·4	119·2	4
"	C.	4	17,416	684·8	4,354	3·9	171·2	4,795	4·2	199·0	8	3,950	3·9	154·1	3
"	D.	7	31,304	1,276·1	4,472	4·1	182·3	5,495	4·1	225·4	9	3,850	4·2	161·9	6
"	E.	8	35,848	1,390·4	4,481	3·9	173·8	5,795	3·4	195·3	4	3,575	3·6	138·2	4
Henryville	A.	4	15,399	563·8	3,849	3·7	140·9	4,300	3·9	167·0	5	3,086	3·7	115·4	9
St. Raymond	A.	4	16,740	725·5	4,185	4·2	181·4	4,670	4·1	190·0	8	3,720	4·7	173·3	6
Lotbiniere	A.	4	19,452	749·2	4,863	3·9	187·3	5,900	3·7	220·0	7	4,060	3·9	158·4	10
Marbleton	A.	4	14,872	554·0	3,718	3·7	138·5	4,200	4·0	169·6	7	3,248	3·6	118·6	8
"	B.	10	43,380	1,584·0	4,338	3·6	158·4	4,875	3·8	184·2	11	3,625	3·4	124·7	8
St. Prosper	A.	5	23,310	930·5	4,662	4·0	186·1	5,326	3·9	208·0	8	3,654	4·0	145·3	2
"	B.	5	26,495	1,046·5	5,299	3·9	209·3	5,930	4·0	233·1	.....	4,135	4·1	167·7	.....
Ormstown	A.	8	48,096	1,578·4	6,012	3·3	197·3	7,890	3·2	255·7	7	4,440	3·2	143·8	4
"	B.	8	33,064	1,252·8	4,133	3·8	156·6	4,760	4·0	191·1	8	3,320	3·2	105·8	4
"	C.	5	27,400	1,112·5	5,480	4·1	222·5	6,805	3·7	256·7	6	4,230	4·5	192·0	6
"	D.	5	26,340	914·0	5,268	3·7	182·8	6,260	3·2	199·9	5	4,640	3·6	165·7	3
"	E.	10	49,990	2,047·0	4,999	4·1	204·7	6,050	3·8	232·6	6	4,215	3·9	163·7	10
"	F.	12	52,884	2,076·0	4,407	3·9	173·0	4,770	4·1	194·8	4	3,650	4·2	151·6	4
"	G.	4	19,352	749·6	4,838	3·8	187·4	5,170	4·0	204·1	5	4,351	3·5	154·5	5
"	H.	11	57,717	2,064·7	5,247	3·6	187·7	5,725	3·3	187·3	.....	4,830	3·6	175·6	.....
"	I.	12	59,556	2,299·2	4,963	3·9	191·6	7,070	3·6	251·2	8	3,250	4·0	131·8	5
Totals and averages	...	197	874,054	33,762·8	4,437	3·9	171·4	4,969	4·0	197·0	.....	3,523	3·9	138·5	.....

TABLE LV.—Comparisons between 18 herds of ten Cows and over, in the province of Quebec, for Full Period of Lactation in 1908.

Name of Associations.	Herd No.	No. of Cows.	Total Yield of Herd.		Average Yield per Cow.			Yield of Best Cow.				Yield of Poorest Cow.			
			Milk.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.
			Lbs.	Lbs.	Lbs.		Lbs.	Lbs.		Lbs.		Lbs.		Lbs.	
St. Armand	A	17	74,467	3,116·6	4,381	4·2	183·3	7,200	3·8	274·5	7	3,052	3·7	111·5	10
"	B	18	81,376	3,095·4	4,521	3·8	172·0	6,530	3·7	241·0	8	2,640	4·0	106·6	.....
"	C	10	39,470	1,811·1	3,947	4·6	181·1	5,766	3·8	220·9	6	2,106	4·8	101·4	10
Upton	A	12	40,580	1,581·1	3,381	3·9	131·7	4,820	3·7	177·1	6	1,760	4·1	71·7	2
Dixville	A	19	85,107	3,759·2	4,479	4·4	197·8	5,855	4·3	250·8	8	2,195	5·0	110·8	2
Dairy Valley	A	10	27,747	1,012·0	2,774	3·6	101·2	3,390	3·4	116·3	4	1,709	4·0	69·1	2
Chicoutimi	A	11	48,212	1,969·7	4,383	4·1	179·0	5,120	4·2	217·0	12	3,724	4·2	158·2	11
"	B	17	72,725	2,920·5	4,278	4·0	171·8	5,630	4·2	236·4	9	2,480	4·1	101·4	2
Bagotville	A	25	133,776	5,552·0	5,351	4·1	222·1	7,080	4·2	297·8	.....	3,606	4·2	152·2	.....
"	B	12	57,339	2,402·4	4,778	4·2	200·2	5,805	4·2	242·3	.....	4,119	4·3	178·6	12
"	C	11	54,159	2,291·0	4,923	4·2	208·3	5,995	4·1	244·3	7	3,900	4·5	175·1	4
North Hatley	A	10	53,818	2,208·7	5,382	4·1	220·8	7,475	4·5	338·5	7	4,399	4·5	196·1	9
"	B	10	35,507	1,402·8	3,550	4·0	140·2	4,257	3·7	159·0	6	2,754	3·9	107·9	2
Cowansville	A	10	43,895	1,975·1	4,389	4·5	197·5	5,270	4·5	235·9	6	3,550	4·8	172·1	6
"	B	10	63,542	2,485·2	6,354	3·9	248·5	8,554	3·6	303·5	5	5,389	4·1	221·5	5
Ste. Emélie	A	11	36,409	1,544·6	3,310	4·2	140·4	3,795	4·1	157·2	5	2,896	4·2	121·1	10
"	B	12	38,720	1,674·6	3,227	4·3	139·5	4,165	4·2	176·5	9	2,056	4·7	96·8	5
"	C	11	33,497	1,406·3	3,045	4·1	127·8	3,997	4·3	172·7	.....	1,958	4·4	87·0	2
Totals and averages	.....	236	1,020,346	42,202·3	4,323	4·1	178·8	5,595	4·0	225·7	.....	3,016	4·3	129·9	.....

Low average yields affect the total production very materially. Between the herd at Dairy Valley and herd B at Cowansville there is an enormous difference; in the latter case the ten cows produced 35,795 pounds of milk and 1,473 pounds of fat more than the other ten cows. In other words one farmer received $358 more for the milk from his ten cows for their season's production.

One of the best herds is found at Bagotville, where twenty-five cows averaged 5,351 pounds of milk and 222 pounds of fat. Large herds of good cows can be maintained if one puts intelligence into dairy farming. This herd is in a family where father and two sons own 150 cows, sending milk to a factory where thirteen patrons deliver 6,000 pounds of milk a day.

Some good individual yields even up to 8,554 pounds of milk and 338 pounds of fat, render the yield of the poorest cows the more unenviable.

Too many cows of mature age figure in the last column, indicating that there is crying need for more careful scrutiny of individual performance. Even leaving out records of the heifers, very low yields of under 3,000 pounds of milk are found, while the low yields of fat are far too conspicuous.

A fairly even herd is the one at Cowansville mentioned above, where the lowest yield is 5,389 pounds of milk and 221·5 pounds of fat: this is a higher yield than several in the 'best cow' column.

TABLE LVI.—Comparisons between Herds in Bagotville, Que., Association, for Full Period of Lactation, 1908.

Herd No.	No. of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	12	4,778	4·2	200·2	.....	5,805	4·2	242·3	12	4,119	4·3	178·6
B	7	5,630	4·0	227·6	.....	6,260	3·9	244·0	.....	4,690	4·2	196·8

TABLE LVII.—Contrasts, Chicoutimi, Que., Association.

——	Milk.	Fat.	Age.
	Lbs.	Lbs.	
Same association, full period, best cow....	5,120	217·0	12
poorest cow	3,345	144·6	7
Same association, 9 months, best cow	5,260	224·7	10
poorest cow	3,465	145·0	12

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TABLE LVIII.—Comparisons between Herds in Cowansville, Que., Association for Full Period of Lactation, 1908.

Herd No.	No. of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	10	4,389	4·5	197·5	6	5,270	4·5	235·9	6	3,550	4·8	172·1
B	10	6,354	3·9	248·5	5	8,554	3·6	303·5	5	5,389	4·1	221·5
C	8	2,812	3·9	111·6	...	3,627	3·7	134·2	2	1,688	5·3	89·4
D	5	5,096	4·6	237·7	7	6,625	4·3	284·0	3	3,825	4·6	178·0

Between herds B and C there is as great a contrast as can be found in any association. The owner of herd B is to be congratulated on the good average, which is chiefly the result of following the lessons to be learned from persistent weighing and sampling.

TABLE LIX.—Contrasts, Cowansville, Que., Association.

—	Milk.	Fat.	Age.
	Lbs.	Lbs.	
Full period, best cow	8,554	303·5	5
poorest cow	2,056	71·4	.....
Same herd, full period, best cow	8,554	303·5	5
poorest cow	3,550	172·1	6
Same herd, 12 months' production, best cow	8,300	358·1	5
poorest cow	5,380	251·3	3

TABLE LX.—Comparisons between two herds in Dairy Valley, Que., Association, for Full Period of Lactation, 1908.

Herd No.	No. of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A.	10	2,774	3·6	101·2	4	3,390	3·4	116·3	2	1,707	4·0	69·1
B.	4	2,608	4·0	103·1	12	2,970	3·7	111·8	7	1,782	4·0	70 5

These are probably two of the poorest herds in Quebec Associations, but the owners are taking heart, because they see what is accomplished by other farmers.

TABLE LXI.—Contrasts, Dairy Valley, Que., Association.

—	Milk.	Fat.	Age.
	Lbs.	Lbs.	
Same association, 9 months, best cow	5,870	188·2	4
poorest cow	2,789	115·1	11

TABLE LXII.—Contrasts, Dixville, Que., Association.

—	Milk.	Fat.	Age.
	Lbs.	Lbs.	
Full period, same herd, best cow	6,540	269·3	7
poorest cow	2,195	110·8	7
Same herd, 5 best cows	28,463	1,191·1	6
5 poorest cows	18,340	828·8	5
Difference	10,128	362·3	

TABLE LXIII.—Comparisons between two herds in Jonquières, Que., Association, for seven months.

Herd No.	No. of Cows.	HERD AVERAGE.			YIELD OF BEST COW.			YIELD OF POOREST COW.		
		Milk.	Test.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.
		Lbs.		Lbs.	Lbs.		Lbs.	Lbs.		Lbs.
A.	12	4,465	4·2	185·9	5,400	4·2	224·7	3,750	4·1	155·2
B.	5	3,232	4·3	140·1	3,010	4·3	168·4	2,720	4·3	118·4

Both of these herds are capable of considerable improvement. Even herd A, so much better than herd B. has great need of lessening the difference between the yields of the best and the poorest cow.

TABLE LXIV.—Contrasts, Marbleton, Que., Association.

—	Milk.	Fat.	Age
	Lbs.	Lbs.	
Same herd, 10 months, best cow	5,050	201·0	7
poorest cow	3,680	122·6	11
Same herd, 10 months, best cow	6,535	237·2	6
poorest cow	5,012	180·5	14
Same herd, 7 months, best cow	3,260	149·7	3
poorest cow	1,975	82·3	3
Same association, 9 months, best cow	3,637	145·8	2
poorest cow	2,315	79·8	2
Same association, 10 months, best cow	6,535	237·2	6
poorest cow	3,680	122·6	11

TABLE LXV.—Comparisons between herds in North Hatley, Que., Association, for Full Period of Lactation, 1908.

Herd No.	No. of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	10	5,382	4·1	220·8	7	7,475	4 5	338·5	9	4,399	4·5	196·1
B	10	3,550	4·0	140·2	6	4,257	3·7	159·0	2	2,754	3·9	107·9
C	6	3,538	3 8	134·2	3	4,590	3·4	156·7	3	2,467	3·8	93·3
D	8	5,922	3·9	230 8	9	6,645	3·6	239·3	4	3,500	4·0	139·3
E	8	4,534	4·1	186·8	8	5,925	4·1	241·8	3	3,373	4·0	133·5
F	8	5,142	4·1	209·2	6	6,900	3·8	266·2	4	3 765	4·9	185·7
G	5	3,788	4·3	163·6	4	4,705	4·6	216·8	3	2,905	4 2	122·9
H	5	3,272	4·1	134·3	5	3,800	4 3	164 4	14	2,510	3·9	98·3

The yield of the poorest cow in herd A is greater than that of the best cow in both herd B and herd H.

Valuing milk at $1 per 100 pounds, the ten cows in herd A earned $183.20 more than the ten cows in herd B.

In herd C the best and the poorest cow are both the same age, but the difference in their earnings is $21.23.

The cows in herd H were dry for three months. The poorest cow in this herd, fourteen years old, has the lowest yield of any of the seventy-two in this table.

TABLE LXVI—Contrasts in North Hatley, Que., Association, Full Period of Lactation.

	Milk.	Fat.	Age.
	Lbs.	Lbs.	
Same herd, best cow	4,590	156·7	3
poorest cow	2,467	93·3	3
Same association, for 7 months, best cow	4,890	198·1	9
poorest cow.	2,270	106 5	8
Same association, for 8 months, best cow	6,890	289·0	7
poorest cow	3,202	124·9	15
Same herd, for 10 months, best cow	6,335	264 0	7
poorest cow.	3,395	150·3	8

TABLE LXVII—Comparisons between Herds in Ormstown, Que., Association, for eight months, 1908.

Herd No.	No. of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	8	6,012	3·3	197·3	7	7,890	3·2	255·7	4	4,440	3 2	143·8
B	8	4,133	3·8	156·6	8	4,760	4·0	191·1	4	3,320	3·2	105.8
C	5	5,480	4·1	222·5	6	6,805	3·7	256 7	6	4,230	4·5	192 0
D	5	5,268	3.7	182·8	5	6,260	3·2	199·9	3	4,640	3·6	165·7
E	10	4,999	4·1	204·7	6	6,050	3·8	232·6	10	4,215	3·9	163·7
F	12	4,407	3·9	173·0	4	4,770	4·1	194·8	4	3,650	4·2	151·6
G	4	4,838	3·8	187·4	5	5,170	4·0	204·1	5	4,351	3·5	154 5

In this group of herds recorded for eight months there will be discerned a difference of 1,879 pounds of milk in the average yields of herds A and B. There is a wide margin between the yield of 105·8 pounds of fat from the cow in herd B and that of 256·7 pounds of fat in herd C.

TABLE LXVIII—Contrasts, Ormstown, Que., Association.

—	Milk.	Fat.	Age.
	Lbs.	Lbs.	
Same association, 7 months, best cow	4,150	162·2	1½
poorest cow	3,120	100·9	3
Full period of lactation, same association, best cow	7,945	308·9	7
poorest cow	4,108	141·6	8
Same association, 8 months, best cow	8,650	316·4	4
poorest cow	3,320	105·8	4

TABLE LXIX—Comparisons between Herds in St. Antoine R. R. Association, Que., for eight months, 1908.

Herd No.	No. of Cows.	HERD AVERAGE.			YIELD OF BEST COW.				YIELD OF POOREST COW.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	4	4,025	3·7	151·7	8	4,377	3·8	166·0	4	3,519	3·4	119·2
B	7	4,472	4·1	182·3	9	5,495	4·1	225·4	6	3,850	4·2	161·9

The larger herd shows better by comparison at every point.

TABLE LXX—Contrasts, St. Antoine, Que., Association.

—	Milk.	Fat.	Age.
	Lbs.	Lbs.	
Same association, 9 months, best cow	8,160	339·9	7
poorest cow	3,835	144·0	6

TABLE LXXI—Comparisons between Herds in St. Armand, Que., Association for Full Period of Lactation, 1908.

Herd.	No. of Cows.	HERD AVERAGE.			YIELD OF BEST COW.				YIELD OF POOREST COW.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	17	4,381	4 2	183·3	7	7,200	3·8	274·5	10	3,052	3·7	111 5
B	18	4,521	3·8	172·0	8	6,530	3·7	241·0	.....	2,640	4·0	106·6
C	10	3,947	4 6	181·1	6	5,766	3·8	220·9	10	2,106	4·8	101·4
D	9	5,726	3 8	219·8	4	7,820	3·7	392·0	2	4,730	3·8	181·1

The two 10-year-old cows in this table are put to shame by the heifer in herd D.

In herd A there is a difference of 4,148 pounds of milk and 163 pounds of fat between the highest and lowest yield.

TABLE LXXII—Contrasts, St. Armand, Que., Association.

—	Milk.	Fat.	Age of Cow.
	Lbs.	Lbs.	
Full period of lactation, best yield	7,820	292·0	7
poorest yield	2,106	101·4	10
10 months, best yield	7,317	292·5	5
poorest yield	3,560	155·9	4
Same herd, 12 months production, best yield	10,480	510·5	9
poorest yield	4,020	211·5	11

This is a difference too extraordinary to be overlooked; one of the greatest to be found in any herd in any association.

Between these two cows in the same herd there is a difference of 6,460 pounds of milk and 299 pounds of fat, or over $64 in the value of milk produced. Assuming that the first cow consumed feed to the value of $50, she would give a profit of $54.80. Assuming that the second cow consumed feed to the same value, her profit would be invisible, in fact a loss of $9.80 would be apparent. Even supposing that her feed is valued at only $40, the profit would be just 20 cents, which means that the first cow gave two hundred and seventy-four times as much profit.

If this profit were banked and the owner aimed at depositing $1,000, it would necessitate keeping only eighteen cows like the first, but of the second kind it would take five thousand.

TABLE LXXIII—Comparisons between herds in Ste. Emélie, Que., Association for Full Period of Lactation, 1908.

Herd No.	No. of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	12	3,227	4·3	139·5	9	4,165	4·2	176·5	5	2,056	4·7	96·8
B	11	3,045	4·1	127·8	.....	3,997	4·3	172·7	2	1,958	4·4	87·0
C	9	4,489	4·2	187·5	5	5,580	4·2	235·0	3	3,150	4·5	142·9
D	5	3,864	4·2	163·4	12	4,890	4·0	197·7	6	2,730	4·5	122·3
E	4	4,256	4·3	183·6	4	4,980	4·5	223·8	3	3,155	4·5	143·0
F	6	4,013	4·1	164·9	6	5,685	4·0	226·3	2	2,864	4·3	123·4
G	7	3,621	4·3	154·1	6	4,302	4·2	180·6	3	2,652	4·3	116·0

Herds B and C supply the contrasts in average yield of both milk and fat. An extra 1,400 pounds of milk from each cow is worth getting.

In herd A the best cow gives more than double the milk given by the poorest cow, a 5-year-old.

TABLE LXXIV—Contrasts, Ste. Emélie Association.

—	Milk.	Fat.	Age.
	Lbs.	Lbs.	
Full period of lactation, 1908, best cow	5,685	226·3	6
poorest cow	2,056	96·8	5
Same association, 9 months, best cow	5,430	234·7	10
poorest cow	3,138	133·9	5

TABLE LXXV—Comparisons between two herds in St. Prosper Association, Que., for nine months, 1908.

Herd No.	No. of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lqs.		Lbs.		Lbs.
A	11	5,668	4·0	225·1	8	7,980	4·2	332·1	5	4,635	4·0	181·1
B	6	4,169	4·0	168·0	12	4,375	4·2	183·0	4	3,775	4·0	152·6

The best cow in herd A gives actually 4,205 pounds of milk and 179·5 pounds of fat more than the poorest in herd B during nine months. This is a difference of at least $42.

TABLE LXXVI—Contrast, eight months, St. Edwidge, Que., Association.

—	Milk.	Fat.	Age.
	Lbs.	Lbs.	
Same herd, best cow	6,000	254·1	6
poorest cow	2,740	109·7	5

TABLE LXXVII—Contrast, eight months, Henryville, Que., Association.

Same herd, best cow	4,300	167·0	5
poorest cow	3,086	115·4	9

TABLE LXXVIII—Comparisons between herds in Ste. Emélie, Que., Association, for nine months, 1908.

Herd No.	No. of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	8	3,859	4·1	160·0	.....	4,130	4·2	175·0	.....	3,600	4·1	147 8
B	4	4,121	4·2	172·9	6	4,865	4·1	199·6	5	3,138	4·2	133·9
C	4	5,162	4·0	206·6	10	5,430	4·3	234·7	9	4,450	4·2	187·8
D	6	3,645	4·3	157·4	8	4,109	4·1	169·6	7	3,285	4·5	149·0

The poorest cow in herd C is better than the best cow in both herd A and herd D in both milk and fat.

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TABLE LXXIX—Comparisons between two herds in Upton Association, Que., for nine months, 1908.

Herd No.	No. of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	5	4,810	3·8	184·6	8	6,020	3·6	219·5	2	3,610	4·0	146·2
B	6	3,770	4·0	150·1	8	4,230	3·9	166·3	3	3,160	3·5	109·9

Note the high percentage of fat in the milk of the poorest cow in herd A; and the great difference between the best cow in herd A and the best cow in herd B.

TABLE LXXX—Contrasts, Upton, Que., Association.

	Milk.	Fat.	Average Age.
	Lbs.	Lbs.	
Same herd, full period of lactation, 3 best cows	13,170	492·7	6
3 poorest cows	9,640	359·3	5
Difference	3,530	133·4	.....

The three best cows in the herd produced 3,530 pounds of milk and 133·4 pounds of fat more than the three poorest.

Every herd of dairy cows in Canada should be checked up in some such way.

TABLE LXXXI—Showing the number of cows in each of 18 herds in Quebec that are below the average yield of milk and fat.

Total number of cows in each of 18 herds of 10 cows and over in Quebec giving **Less** than the average yield of **4,323** lbs. **Milk.**			Total Number of Cows in Herd.	Total number of cows in each of 18 herds of 10 cows and over in Quebec giving **Less** than the average yield of **178·8** lbs. **Fat.**		
Herd No.	Name of Associations.	Number of cows in each herd that are below the average in **MILK.**		Number of cows in each herd that are below the average in **FAT.**	Name of Associations.	Herd No.
1	Bagotville	1	25	3	Bagotville	1
2	"	2	12	2	"	2
3	"	2	11	1	"	3
4	Chicoutimi	5	11	7	Chicoutimi	4
5	"	8	17	11	"	5
6	Cowansville	3	10	3	Cowansville	6
7	"	None.	10	None.	"	7
8	Dairy Valley	10	10	10	Dairy Valley	8
9	Dixville	9	19	5	Dixville	9
10	North Hatley	None.	10	None.	North Hatley	10
11	"	10	10	10	"	11
12	St. Armand	8	17	6	St. Armand	12
13		8	18	12	"	13
14	"	6	10	5	"	14
15	Ste. Emelie	11	11	11	Ste. Emelie	15
16	"	12	12	12	"	16
17	"	11	11	11	"	17
18	Upton	11	12	12	Upton	18
	Totals	117	236	121		

This table, No. 81, is compiled to indicate the varying degrees of efficiency of the different herds. At North Hatley, for example, are two herds in great contrast; in one, there are no cows giving less than the average yield in either milk or fat, while in the other, every single cow is below the average.

The three herds at Ste. Emélie make a poor showing, while those at Bagotville are evidently on a much better level of production. One herd of ten cows at Cowansville shows up well, with each cow in the herd giving more than the average.

The totals show that more than half of the 236 cows give less than the average yield of 178·8 pounds of fat.

Similar compilations of eighteen herds in Ontario reveal about the same conditions. The average yield of 248 cows comprising eighteen herds of ten cows and over is 5,985 pounds of milk and 211·7 pounds of fat. The totals show that more than half of the 248 cows gave less than 5,985 pounds of milk. But what is more important is the standing of many herds, some having every cow giving less than the average, in either milk or fat; others again, herds of thirteen and twenty cows, having only one cow giving less than the average. Such herds are brilliant examples of what may be accomplished by systematically weeding out the poor individuals.

A similar summary of twelve herds of ten cows and over, in British Columbia, reveals 145 out of 218 cows giving less than the average of 6,942 pounds of milk and 246·8 pounds fat. While this average yield of medium size herds is larger than either Ontario or Quebec, the separate herds do not stand so well in comparison: for which the exception of one herd, all the other eleven herds have from one half to four-fifths of the individual cows falling below the average production.

This, again, goes to support the statement that frequently good herd averages are materially helped by one or two brilliant individuals, but those same herds are often the very ones still harbouring one or two particularly undeserving and unproductive individuals.

WHAT 'WEEDING OUT' INVOLVES.

By following systematic weighing and testing, the owner of a herd is enabled to discover (1) if each cow is paying a profit and (2) which cows pay the most profit. Occasionally a sweeping change in the composition of the herd is demanded.

For instance in a herd at Dairy Valley, Que., the total yield of ten cows in 1908 was 27,747 pounds of milk. Allowing $1 per 100 pounds, the total income is $277.47. The owner's estimate of feed was two tons corn fodder at $3, 1½ tons hay at $10, pasture, $6, grain (oats, corn and barley) $6, or a total of $33 per cow. With a cost therefore of $330 for feed and an income of $277.47 for milk it is difficult to discover anything but a total dead loss as the result of the year's work. The two best cows in the herd gave yields of only 3,390 pounds, and 3,345 pounds of milk, which seem to indicate profits of only 90 cents and 45 cents respectively.

While the true dairy farmer who is looking for large yields of milk and butter fat at a low cost is not keeping the dual purpose cow of controversy and debate (the cow that will give a fair quantity of milk and that will produce calves that can be profitably grown into beef), he should be feeding his dairy herd with this dual purpose constantly in mind. 1st, to make each individual cow produce up to her full economical capacity; 2nd, to make each cow return a good profit. In the realization of this ideal will be found true economy and unbounded satisfaction.

Many of our best farmers are now dairying because they find it more remunerative than when they were raising beef. One herd in Ontario might be referred to where originally heavy beef animals were the rule, but now the purely 'butter cow' is kept: 40 grades averaged 330 pounds of butter; one cow has given 500 pounds of butter for three years. In addition to sales of butter, pork brought in $1,470 last year. A member in Quebec, with 20 grades, also sold over $700 worth of pork in 1908.

To bring any herd up to a state of high efficiency there must be continuous culling of the poorest individuals, and breeding for a higher standard.

It is comparatively easy, that is, it has been done by many farmers, to bring a herd of grade cows up to a yield of 360 pounds of butter from a yield of 240 pounds inside six or seven years, by first of all dispensing with the use of the immature and low grade sire, and using only a bull from dairy stock; second, by constant weighing and testing so as to know which culls to sell.

The two following tables of two herds at St. Emélie, Que., indicate that by weeding out the poorest cows there is an increase in the profit per cow, a saving of feed and a saving of labour.

If these, and other, cows were fed more liberally, what are they capable of producing?

TABLE LXXXII.—Showing the increased Profit, the saving in Labour and the saving in Feed by disposing of the cows giving Less than 3,500 pounds of milk for the Full Period of Lactation.

12 Cows. Cow Number.	Age.	Milk.	Test.	Fat.	Period of lactation in months.	Milk.	Test.	Fat.	Age.
		Lbs.		Lbs.		Lbs.		Lbs.	
1	4	3,530	4·3	151·0	9	3,530	4·3	151·0	4
2	3	2,940	3·9	115·0	9	.....	.....	Weed out.	.....
3	9	4,165	4·2	176·5	9	4,165	4·2	176·5	9
4	3	2,880	4·3	123·3	9	.....	.....	Weed out.	.....
5	14	3,519	4·0	141·6	9	3,519	4·0	141·6	14
6	4	3,226	4·3	140·9	9	.....	.....	Weed out.	.....
7	4	2,632	4·6	122·9	9	.....	.....	Weed out.	.....
8	6	3,838	4·2	161·9	9	3,838	4·2	161·9	6
9	7	3,376	4·2	142·7	9	.....	.....	Weed out.	.....
10	5	2,056	4·7	96·8	9	.....	.....	Weed out.	.....
11	8	3,758	4·2	157·3	9	3,758	4·2	157·3	8
12	7	3,200	4·5	144·7	9	.....	.....	Weed out.	.....
Totals....	.....	39,120	..	1,674·6	.....	18,810	....	788·3	.....
Averages..	.....	3,227	4·3	139·5	.....	3,762	4·2	157·6	.....

Cows.	Total Yield of Milk.	Total Yield of Fat.	Price per 100 lbs.	Total Value.
	Lbs.	Lbs.	$ cts.	$ cts.
12	39,120	1,674·6	1 00	391 20
		Cost of feed,	12 cows at 30 00	360 00
.....	.....	.....	Total profit.....	31 20

Average profit per cow..... $2.60

But, retaining only the 5 best cows the statement is :—

5	18,810	788·3 Cost of feed	$1 00 5 cows at 30 00.	$188 10 150 00
.....	.....	.....	Total profit.....	38 10

Average profit per cow $7 62

Besides the increased profit per cow there is a saving of work, and a saving of feed to the value of $210.

TABLE LXXXIII.—Showing the effect of Weeding Out the Cows giving Less than 3,000 pounds of milk for the Full Period of Lactation.

7 Cows.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.
Cow No.	Lbs.		Lbs.		Lbs.		Lbs.	
1	3,320		135·0	4	3,320		135·0	4
2	3,481		152·2	4	3,481		152·2	4
3	3,395		135·7	5	3,395		135·7	5
4	2,942		121·1	6			Weed out.	
5	2,798		111·0	8			Weed out.	
6	3,649		144·2	9	3,649		144·2	9
7	3,225		134·3	13	3,225		134·3	13
Totals	22,810		933·5		17,070		701·4	
Average	3,258	4·0	133 3	7	3,414	4·1	140·3	7

	Total Yield of Milk.	Price per 100 lb.	Total Value.
	Lbs.	$ cts.	$ cts.
7 cows	22,810	1 00	228 10
Cost of feed, $28 each			196 00
Total profit			32 10
Average profit per cow			4 58

Now, by weeding out the two poorest cows the result is:—

	Total Yield of Milk.	Price per 100 lb.	Total Value.
	Lbs.	$ cts	$ cts.
5 cows	17,070	1 00	170 70
Cost of feed, $28 each			140 00
Total profit			30 70
Average profit per cow			6 14

And a saving of feed to the value of $56. The feed is stated by the owner to be, pasture, $6; hay, $15; straw, $3; grain, $3; roots, $1, total, $28.

Loss per cow can be converted into profit per cow by the culling process as instanced in the following table relative to a herd at St. Armand, Que.

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TABLE LXXXIV.—Weeding Out Cows giving Less than 4,000 lbs. milk.

17 Cows.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.
Cow No.	Lbs.		Lbs.		Lbs.		Lbs.	
1	3,580		153·6	7			Weed out.	
2	3,987		190·2	7			Weed out.	
3	3,359		129·0	7			Weed out.	
4	4,395		154·7	7	4,395		154·7	7
5	4,228		184·8	9	4,228		184·8	9
6	4,019		170·9	3	4,019		170·9	3
7	4,517		187·4	2	4,517		187·4	2
8	5,670		213·4	9	5,670		213·4	9
9	5,065		211·9	9	5,065		211·9	9
10	4,420		188·1	5	4,420		188·1	5
11	3,052		111·5	10			Weed out.	
12	7,200		274·5	7	7,200		274·5	7
13	3,555		225·5	14			Weed out.	
14	5,109		189·9	10	5,109		189·9	10
15	4,568		186·4	4	4,568		186·4	4
16	4,576		196·8	4	4,576		196·8	4
17	3,167		148·0	5			Weed out.	
Totals	74,467		3,116·6		53,767		2,158·8	
Averages	4,381	4.2	183·3		4,888	4·0	196·2	

	Total Yield of Milk.	Total Yield of Fat.	Price per 100 lb. Milk.	Total Value.
	Lbs.	Lbs.	$ cts.	$ cts
17 cows	74,467	3,116·6	1 00	744 67
Cost of feed, $46 each				782 00
Total loss				37 33
Average loss per cow				2 20

But by weeding out 6 cows:

	Total Yield of Milk.	Total Yield of Fat.	Price per 100 lb. milk.	Total Value.
	Lbs.	Lbs.	$ cts.	$ cts.
11 cows	53,767	2,158·8	1 00	537 67
Cost of feed, $46				506 00
Total profit				31 67
Average profit				2 88

There is also a saving in labour, and in feed of $276.

TABLE LXXXV.—Weeding Out Ten Cows in a Quebec herd giving Less than 4,500 pounds of milk. Cost of Feed is given by the owner of this herd.

17 Cows.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.
Cow No.	Lbs.		Lbs.		Lbs.		Lbs.	
1	3,580		153·6	7			Weed out.	
2	3,987		190·2	7			Weed out.	
3	4,395		154·7	7			Weed out.	
4	4,228		184·8	9			Weed out.	
5	4,019		170·9	3			Weed out.	
6	4,517		187·4	2	4,517		187·4	2
7	5,670		213·4	9	5,670		213·4	9
8	5,065		211·9	9	5,065		211·9	9
9	4,420		188·1	5			Weed out.	
10	3,052		111·5	10			Weed out.	
11	7,200		274·5	7	7,200		274·5	7
12	3,555		225·5	14			Weed out.	
13	5,109		189·9	10	5,109		189·9	10
14	4,568		186·4	4	4,568		186·4	4
15	4,576		196·8	4	4,576		196·8	4
16	3,167		148·0	5			Weed out.	
17	3,359		129·0	7			Weed out.	
Totals	74,467		3,116·6		36,705		1,460·3	
Average	4,381	4·2	183·3		5,243	4·0	208·6	

Cows.	Milk.	Fat.	Price.	Total.
17	74,467	3,116·6	$1.00	$744.67
	Cost of feed, 17 cows at $46			782.00
	Loss			$ 37.33, or $2.20 each.

But, by weeding out 10 cows:—

Cows.	Milk.	Fat.	Price.	Total.
7	36,705	1,460·3	$1.00	$367.05
	Cost of feed, 7 cows at $46			322.00
	Profit			$ 45.05, or $6.43 each.

Besides a saving in feed of $460.

The average yield of this herd of seventeen cows stands at 4,381 pounds of milk and 183·3 pounds of fat. As the owner states, the average cost of feed was $46 per cow. This table is prepared to show (1) that there is every indication of a loss of $2.20 on each cow, but (2) that this loss could be turned into a profit of $6.43 on each of seven cows if those giving less than 4,500 pounds of milk were disposed of.

Even allowing 25 cents per pound for butter fat, a loss per cow is indicated, which by weeding out the same cows could be turned into a profit of $7.

In the following table relative to a herd at St. Armand, Que., is seen the result of having weeded out those cows giving less than 4,000 pounds of milk.

Although there are three 2-year olds included, and although the feed is estimated by the owner at $45 per cow, there is a profit on each cow.

TABLE LXXXVI.

Cow Number	Pounds of Milk.	Test.	Pounds of Fat.	Age.
1	5,210	.....	216·8	2
2	5,575	.....	187·3	4
3	5,925	.....	225·8	3
4	4,730	.....	181·1	2
5	4,790	.....	177·4	2
6	5,410	.....	201·1	4
7	7,820	.....	292·0	4
8	5,585	.....	221·5	5
9	6,490	.....	257·7	.....
Totals	51,535	.....	1,960·7	.....
Averages	5,926	3·7	217 8	

Number of Cows.	Total Yield of Milk, lbs.	Total Yield of Fat, lbs.	Price per 100 lbs. Milk.	Value.
9	51,535	1,960·7	$1 00	$515 35
	Cost of feed at $45			405 00
	Profit			$110 35 or $12.26 each cow

TABLE LXXXVII.—Showing the increased Profit, the saving in Labour, and the saving in Feed by weeding out the six poorest in a herd of eleven cows.

Cow Number	Milk.	Fat.	Age.	Milk.	Fat.	Age.
	Lbs.	Lbs.		Lbs.	Lbs.	
1	3,764	156·0	10	3,764	156·0	10
2	3,155	144·0	8	.....	Weed out.	
3	3,795	157·2	5	3,795	157·2	5
4	2,960	128·2	6	.....	Weed out.	
5	2,896	121·1	10	.....	Weed out.	
6	2,709	116·4	3	.....	Weed out.	
7	2,965	126·3	5	.....	Weed out.	
8	3,757	156·3	6	3,757	156·3	6
9	3,668	154·5	6	3,668	154·5	6
10	3,515	145·7	10	3,515	145·7	10
11	3,225	135·9	3	.....	Weed out.	
Total	36,409	1,541·6	.....	18,499	769·7	
Average	3,310	140·1	...	3,700	153 9	

11 cows, 36,409 lbs. milk at $1.00 per 100 lbs	$364 09	
Cost of feed, $30	330 00	
Total profit	$ 34 09	
Average profit per cow	3 10	
But :—5 cows, 18,499 lbs. milk at $1.00 per 100 lbs	184 99	
Cost of feed, $30	150 00	
Total profit	$ 34 99	
Average profit per cow	7 00	

By keeping only five cows there would have been more profit than with all the eleven cows, a huge saving in labour, and $180 worth of feed which might have been profitably used in further development of the five cows.

TABLE LXXXVIII.—Effect of Weeding two cows out of three in a Prince Edward Island herd.

Cow Number	Pounds of Milk.	Pounds of Fat.	Pounds of Milk.	Pounds of Fat.
1	5,142	192·2	5,142	192·2
2	3,840	134·1	... .	Weed out.
3	3,070	100·1	....	Weed out.
Totals	12,052	426·4	5,142	192·2
Averages	4,017	142·1	5,142	192·2

The three cows in this herd have an average yield of 4,017 pounds of milk and 142·1 pounds of fat. Cow No. 1 gives 1,125 pounds of milk and 50 pounds of fat, equal to 58 pounds of butter more than the average of the three cows.

All the three cows give a total yield of 12,052 pounds of milk, which, valued at $1 per 100 pounds, means an income of $120.52; with a cost of $40 each for feed, the profit is only 52 cents on the three cows for the year; an average, forsooth, of 17 cents profit on each of the three cows.

Cow No. 1, on the same basis, made $11.42 profit, or sixty-seven times as much.

In addition, there would be $80 worth of feed on hand.

TABLE LXXXIX.—Effect of Weeding Out the five poorest cows in a herd of 23 in an Association in Dundas County, Ontario.

Cow Number	Pounds of Milk.	Pounds of Fat.	Pounds of Milk.	Pounds of Fat.
1	5,770	197·3	5,770	197·3
2	5,330	180·6	5,330	180·6
3	5,680	211·0	5,650	211·0
4	5,350	198·9	5,350	198·9
5	3,730	137·2	.....	Weed out.
6	5,330	185·4	5,330	185·4
7	5,200	195·9	5,200	195·9
8	4,640	170·9	4,640	170·9
9	4,820	171·8	4,820	171·8
10	5,008	188·6	5,008	188·6
11	4,900	172·6	4,900	172·6
12	4,535	164 2	4,535	164·2
13	4,655	164·4	4,655	164·4
14	4,270	155·9	4,270	155·9
15	4,630	167·2	4,630	167·2
16	5,420	193·4	5,420	193·4
17	4,858	169·4	4,858	169·4
18	4,841	172·8	4,841	172·8
19	3,210	117·5	.....	Weed out.
20	3,330	122·0	.....	Weed out.
21	2,855	106·5	.....	Weed out.
22	4,070	152·4	4,070	152·4
23	2,216	81·5	....	Weed out.
Totals	104,649	3,777·4	89,307	3,212·7
Averages	4,550	164·2	4,961	178·5

Increase in average of milk, 411 pounds per cow.

Increase in average of fat, 14·3 pounds per cow.

Equivalent to 17 pounds of butter per annum.

In the above herd of 23 cows, the average yield is seen to be 4,550 pounds of milk and 164·2 pounds of fat. By weeding out the five poorest cows there would be a sav-

ing of labour attendant on keeping five cows for one year, a saving of $200 worth of feed, and an increase in the average herd yield by 17 pounds of butter per annum.

The profit per cow would be increased from $5.50 per cow to $9.61 per cow according to the following statement.

Number of Cows.	Total Yield of Milk, lbs.	Total Yield of Fat, lbs.	Price per 100 lbs. Milk	Total Value.	
23	104,649	3,777·4	$1.00	$1,046.49	
	Cost of feed, $40 each			920.00	
	Total profit			$126.49	or $5.50 each.
18	89,307	3,212·7	$1.00	$893.07	
	Cost of feed, $40 each			720.00	
	Total profit			$173.07	or $9.61 each.

TABLE XC.—Effect of Weeding the four poorest cows in a Herd of Eight in a British Columbia Association.

Cow Number.	Pounds of Milk.	Pounds of Fat.	Pounds of Milk.	Pounds of Fat.
1	7,035	301·3	7,035	301·3
2	6,325	305·0	6,325	305·0
3	5,680	230·5	5,680	230·5
4	6,505	230·9	6,505	230·9
5	3,910	186·2		Weed out.
6	4,025	182·8		Weed out.
7	3,385	152·7		Weed out.
8	3,560	171·1		Weed out.
Totals	40,425	1,760·5	25,545	1,067·7
Averages	5,053	220·0	6,386	267·0

By weeding out four cows from this herd of eight the average yield would be increased by 1,333 pounds of milk and 66 pounds of butter per cow.

The average profit would also be raised from $5.53 to $18.83 per cow as shown below.

Number of Cows.	Total Yield of Milk, lbs.	Total Yield of Fat, lbs.	Price per 100 lbs. Milk.	Total Value.	
8	40,425	1,760·5	$1.00	$404.25	
	Cost of feed at $45			360.00	
	Total profit			$ 44.25	or $5.53 each cow.

But with 4 good cows :—

4	25,545	1,067·7	$1.00	$255.45	
	Cost of feed at $45			180.00	
	Total profit			$ 75.45	or $18.83 each cow.

Thus one could keep four cows instead of eight, saving half the labour and make $31.20 more profit, and over three times as much profit per cow.

ASSOCIATIONS IN BRITISH COLUMBIA.

TABLE XCI.—Total and Average Yield of 72 Cows tested Seven Months, 1908.

Associations.	Number of Cows.	Total yield of Milk.	Total yield of Fat.	Average yield of Milk.	Average Test.	Average yield of Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Chilliwack	2	9,248	322·1	4,624	3·5	161·0
Comox	14	52,946	2,199·1	3,782	4·1	157·0
Cowichan	30	113,177	4,980·9	3,772	4·4	166·0
Eden Bank	23	114,285	4,314·3	4,969	3·7	187·6
Nanaimo	3	13,655	572·0	4,551	4·2	190·6
Totals and averages	72	303,311	123,884·0	4,215	4·0	172·0

TABLE XCII.—Total and Average Yield of 63 Cows tested Eight Months, 1908.

Associations.	Number of Cows.	Total yield of Milk.	Total yield of Fat.	Average yield of Milk.	Average Test.	Average yield of Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Chilliwack	10	47,004	1,569·9	4,700	3·3	156·9
Comox	19	82,310	3,429·0	4,332	4·1	180·4
Cowichan	19	74,638	3,231·7	3,928	4·3	170·1
Eden Bank	15	77,253	2,948·8	5,150	3·8	196·5
Totals and averages	63	281,205	11,179·4	4,463	4·0	177·4

TABLE XCIII.—Total and Average Yield of 39 Cows tested Nine Months, 1908.

Associations.	Number of Cows.	Total yield of Milk.	Total yield of Fat.	Average yield of Milk.	Average Test.	Average yield of Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Comox	9	38,776	1,694·8	4,308	4·3	188·3
Cowichan	17	75,247	3,254·2	4,426	4·3	191·4
Eden Bank	9	57,411	2,023·7	6,379	3·5	224·8
Nanaimo	4	25,812	1,091·1	6,453	4·2	272·8
Totals and averages	39	197,246	8,063·8	5,057	4·1	206·7

TABLE XCIV.—Total and Average Yield of 24 Cows tested Ten Months, 1908.

Associations.	Number of Cows.	Total yield of Milk.	Total yield of Fat.	Average yield of Milk.	Average Test.	Average yield of Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Chilliwack	4	24,995	800·9	6,249	3·2	200·2
Comox	4	23,405	1,091·5	5,851	4·6	272·9
Cowichan	2	18,984	643·1	9,492	3·4	321·5
Eden Bank	7	46,749	1,814·1	6,678	3·8	259·1
Nanaimo	4	23,705	1,083·5	5,926	4·5	270·8
Richmond	3	22,830	709·2	7,610	3·1	236·4
Totals and averages	24	160,668	6,142·3	6,694	3·8	255·9

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TABLE XCV.—Total and Average Yield of 15 Cows tested Eleven Months, 1908.

Associations.	Number of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield of Milk.	Average Test.	Average Yield of Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Cowichan	7	44,156	1,846·6	6,308	4·2	263·8
Eden Bank	5	31,475	1,382·1	6,295	4·4	276·4
Nanaimo	3	21,000	978·8	7,000	4·6	326·2
Totals and averages	15	96,631	4,207·5	6,442	4·4	280·5

TABLE XCVI.—Total and Average Yield of 54 Cows tested Twelve Months, 1908.

Associations.	Number of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield of Milk.	Average Test.	Average Yield of Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Chilliwack	6	41,877	1,766·3	6,979	4·2	294·4
Comox	10	65,935	2,785·7	6,593	4·2	278·5
Cowichan	18	112,636	5,086·5	6,257	4·5	282·5
Eden Bank	8	57,282	2,404·1	7,160	4·2	300·5
Nanaimo	5	35,733	1,763·2	7,146	4·9	352·6
Richmond	7	66,970	2,185·3	9,567	3·2	312·1
Totals and averages	54	380,433	15,991·1	7,045	4·2	296·1

In this series of comparisons of total and average yields for periods of from seven to twelve months, it will be noticed that there is a marked difference between the average yield of milk per herd in the several associations and the general average yield of all the associations as given in the bottom line at the foot of each table. In the comparisons for ten months, for instance, the four cows in the Comox Association, producing only 23,405 pounds of milk, average 843 pounds less than the 6,694 pounds average of all the twenty-four cows; and vice versa, the two cows at Cowichan are 2,798 pounds of milk above that general average.

Some noteworthy contrasts appear in the British Columbia associations between cows calving just about the same time.

Cow milking 9 months, age 8, 6,115 lb. milk, 233 lb. fat.
" 9 " " 10, 2,980 " 159 "

" 11 " " 6, 10,068 " 448 "
" 11 " " 8, 5,915 " 220 "

Full period lactation, " 5, 9,895 " 257 "
" " " 11, 3,553 " 165 "

" " " 2, 7,045 " 222 "
" " " 8, 5,563 " 174 "

Such differences in yields, running as high as 6,342 pounds of milk, and 228 pounds of fat, again emphasize the need for considering each cow in the herd on her own particular merits.

CHILLIWACK B.C., ASSOCIATION.

TABLE XCVII.—Comparisons between herds for Full Period of Lactation in 1908.

Herd.	No. of Cows in Herd.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	15	6,430	3·2	203·7	6	9,825	3·1	303·9	2	4,770	3·3	157·0
B	5	5,979	3·8	230·0	8	6,825	4·1	280·3	3	4,417	4·2	186·7
C	5	7,665	4·4	335·8	7	8,864	4·6	408·1	4	5,885	4·1	240·0

If butter fat is valued at 30 cents per pound, the best cow in herd C has an earning power over the poorest cow in the same herd of more than fifty dollars. Who can wish to remain content with a knowledge of the total production of a herd, or average yields, when such differences exist between individual cows in the same herd under the same management?

COMOX, B.C., ASSOCIATION.

TABLE XCVIII.—Comparisons between herds for Full Period of Lactation, 1908.

Herd.	No. of Cows in Herd.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	10	4,542	4·5	206·6	7	5,665	4·7	267·1	4	3,605	5·1	187·0
B	14	5,755	3·9	225·4	5	7,270	3·9	281·5	5	4,620	4·0	185·0
C	6	4,311	4·3	185·2	6	5,189	4·3	224·4	5	3,810	3·9	149·1
D	10	5,191	4·1	215·9	9	6,773	4·7	322·0	6	3,615	4·7	172·5
E	8	6,864	4·4	303·0	4	7,235	4·9	355·3	8	5,576	3·9	217·4
F	5	5,030	5·3	267·6	2	5,870	4·8	281·4	2	4,327	5·2	224·6
G	17	4,280	4·3	184·9	6	5,625	4·4	242·0	2	2,510	5·4	137·2

In herd D the best yield is 1,582 pounds of milk above the average of the ten cows in the herd, and the poorest yield is practically the same, 1,576 pounds below the average. The high test, however, of this 6-year old influences the comparison of yield of fat, for she is only 43·4 pounds of fat below the herd average, though the 9-year old is 106 pounds of fat above.

The poorest cows in herds F and G are again indicative of the individuality of heifers.

COMOX, B.C., ASSOCIATION.

TABLE XCIX.—Comparisons between herds for Eight Months, 1908.

Herd.	No. of Cows in Herd.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	4	5,242	3·7	194·9	4	6,860	3·3	226·9	2	4,140	3·6	149·7
B	5	3,523	4·2	148·2	—	4,665	3·6	168·5	—	2,640	3·8	101·4
C	4	5,032	4·2	212·5	7	6,515	3·8	248·0	2	2,490	4·5	111·9

With the poorest cows in herds B and C giving within eleven pounds of fat of one another, it is surprising to see the one herd averaging 64 pounds of fat more than the other. If the best cow in herd B were anywhere near the other two good cows in herds A and C in production of either milk or fat, the herd average of the five cows might be nearer a 5,000 pound level.

COWICHAN, B.C., ASSOCIATION

TABLE C.—Comparisons between 16 herds for Full Period of Lactation, 1908.

Herd.	No. of Cows in Herd.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	41	6,138	4·0	243·7	5	9,895	2·6	257·1	4	3,170	5·5	174·4
B	8	6,341	4·8	303·0	3	8,056	4·5	366·1	2	3,770	4·6	175·3
C	9	6,604	4·5	300·8	8	8,985	3·7	336·1	2	4,569	4·2	192·1
D	4	6,585	4·2	274·4	4	7,150	4·2	300·9	5	6,110	4·7	289·4
E	7	6,665	3·8	256·1	7	7,211	4·0	286·0	11	6,100	3·8	230·2
F	10	5,760	4·5	259·5	5	8,610	5·4	434·2	2	3,730	5·0	185·7
G	11	4,861	4·6	226·8	7	6,213	4·6	285·9	7	4,351	4·3	189·1
H	6	6,755	4·7	321·7	5	7,520	4·7	352·0	2	5,845	4·2	245·2
I	10	5,866	4·3	252·2	9	7,370	4·6	343·5	8	4,070	6·3	259·1
J	6	3,987	4·4	175·0	7	4,670	4·0	184·3	3	3,106	5·0	155·8
K	5	4,354	4·0	171·5	6	5,680	4·2	237·5	2	2,520	3·9	98·3
L	6	7,720	4·7	363·3	6	9,880	4·0	393·7	5	5,890	5·0	292·1
M	5	4,512	3·7	170·5	5	5,785	3·7	211·8	3	3,646	3·8	139·5
N	6	5,782	4·1	235·9	8	7,200	4·0	282·5	5	5,255	4·0	208·7
O	8	3,857	4·3	167·1	7	5,177	4·4	228·8	7	2,875	4·4	127·3
P	4	4,871	4·1	201·9	2	5,035	4·3	218·1	2	4,750	3·8	182·9

Such comparisons as are only made possible by a table of this nature should make every owner of dairy cows redouble his energetic inquiries into the possibilities lurking undiscovered under his stable roof. Higher yields are possible.

While there are six 2-year olds that are responsible for the lowest yields in the sixteen herds, still a reference to table 107, devoted to the yields of 2-year-old heifers, should make it clear that only one extra low yield, herd K, has much effect on these comparisons. The other heifers give fairly good yields.

Again are to be seen cows of seven, eight and eleven years of age that ought to be ashamed of themselves, or that ought to cause their owners some heart burnings, for appearing in the list of poorest cows.

As in herd A is found one of the best yields, so also in the same herd it noticed one of the sharpest contrasts between best and poorest cow.

The sixteen best cows average 7,152 pounds of milk and 295 pounds of fat; and the sixteen poorest cows average 2,789 pounds of milk and 98 pounds of fat less than the best cows. If butter fat is worth 30 cents per pound, this means an average difference of over twenty-nine dollars in the earnings of two cows in each herd for the season. Does not this indicate loss?

EDEN BANK, B.C., ASSOCIATION.

TABLE CI.—Comparisons between herds for Seven Months, 1908.

Herd.	No. of Cows in Herd.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	5	4,627	4·0	186·0	5	5,295	4·3	227·7	4	3,600	3·7	132·9
B	4	6,307	3·5	219·9	2½	7,280	3·5	259·2	.....	5,030	3·5	175·9
C	6	4,445	3·9	175·2	.....	6,130	3·9	239·0	.....	2,800	5·1	143·5

In herd C the cow giving the poorest yield has a particularly high average test, noticeably above the average test of the herd.

The 2-year old in the eight months list following is also conspicuously high in the test

TABLE CII.—Comparisons between herds for Eight Months, 1908.

Herd.	No. of Cows in Herd.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	4	5,695	3·6	207·3	13	6,670	3·6	241·0	14	4,120	4·0	167·8
B	7	4,324	4·1	179·7	6	5,750	3·5	202·9	2	3,330	4·6	155·1

EDEN BANK, B.C., ASSOCIATION.

TABLE CIII.—Comparisons between herds for Full Period of Lactation, 1908.

Herd.	No. of Cows in Herd.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	4	7,037	3·4	240·5	10	9,063	3·1	288·5	4	5,100	3·2	166·2
B	5	6,601	4·1	272·5	8	7,690	4·5	348·6	6	6,030	3·6	217·7
C	8	5,066	3·6	185·6	8	6,580	3·7	246·2	2	4,440	3·3	148·2
D	28	6,782	4·0	271·9	11	10,030	3·5	357·7	6	4,940	4·0	199 7
E	22	6,934	3 5	245·1	7	9,773	3·7	364·1	2	2,835	3·3	95·0
F	4	4,886	3·8	187·2	4	5,665	3·4	197·8	9	4,240	4·3	184·8
G	8	5,053	4·3	220·0	8	7,035	4·2	301 3	2	3,385	4·5	152·7
H	7	5,683	3·4	197 5	10	8,012	3·2	257·8	8	3,267	4·0	130·9
I	8	4,949	3·7	191·7	4	5,890	3·6	211·2	3	3,430	4·0	138 8

One interesting feature of this table is the noteworthy averages made by the two large herds D and E. Herd D is mostly Ayrshire, with a little Jersey blood; herd E is almost entirely Shorthorn.

Herd B has an average of 86·9 pounds of fat more than that of herd C.

Four out of these nine herds have individual cows yielding over 300 pounds of fat, two giving over 350 pounds, which production is of a very different order from the six, eight and nine year old cows' low yields in the last column.

NANAIMO, B.C., ASSOCIATION.

TABLE CIV.—Comparisons between herds for Full Period of Lactation, 1908.

Herd.	No. of Cows in Herd.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	6	4,683	4·5	214·3	3	5,635	4 6	260 6	2	4,420	4·0	176·2
B	6	5,693	5·0	256·2	5	6,800	3·9	268 7	8	3,685	5·8	215 7
C	4	7,275	4·2	307·8	6	8,975	4·3	384 9	3	4,995	4 8	240·5

If one is looking for variations in yields of milk between two individual cows in the same herd, an instance may be found in herd B where there is a difference between the best cow and the poorest cow of 3,115 pounds of milk.

In herd C the difference is 144 pounds of fat.

TABLE CV.—The Yields of 417 Individual Cows for Full Period of Lactation in 7, 8, 9, 10, 11 and 12 Months in British Columbia Associations are classified as follows:—

Number of Months.	Total Yield of Milk in Pounds.													Total Number of Cows.	Number of Herds Represented.	Number of Associations.
	2,000 to 3,000 lb.	3,000 to 4,000 lb.	4,000 to 5,000 lb.	5,000 to 6,000 lb.	6,000 to 7,000 lb.	7,000 to 8,000 lb.	8,000 to 9,000 lb.	9,000 to 10,000 lb.	10,000 to 11,000 lb.	11,000 to 12,000 lb.	12,000 to 13,000 lb.	13,000 to 14,000 lb.	14,000 to 15,000 lb.			
	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.			
7	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	2	2
8	4	8	5	4	2	.....	.....	.....	.....	.....	.....	.....	.....	23	14	4
9	1	7	15	13	10	3	4	2	1	.....	.....	.....	.....	56	28	6
10	.....	10	27	37	24	16	7	4	2	3	.....	1	.....	131	44	6
11	.....	9	25	37	30	23	15	8	1	1	.....	1	2	152	46	6
12	.....	5	5	10	16	4	5	3	2	.....	1	.....	.....	51	25	5
Number of Cows	6	42	77	101	82	46	31	17	6	4	1	2	2	417	.....	.....

This table indicates the lengthy period of lactation, and the large proportion of cows giving over 5,000 lb. milk.

TABLE CVI.—The yield of 267 Individual Cows for periods of 7, 8, 9, 10, 11 and 12 Months in British Columbia Associations are classified as follows :—

Number of Months.	Total Yield of Milk in Pounds.											Total Number of Cows.	Number of Herds Represented.	Number of Associations.
	1,000 to 2,000 Lbs.	2,000 to 3,000 Lbs.	3,000 to 4,000 Lbs.	4,000 to 5,000 Lbs.	5,000 to 6,000 Lbs.	6,000 to 7,000 Lbs.	7,000 to 8,000 Lbs.	8,000 to 9,000 Lbs.	9,000 to 10,000 Lbs.	10,000 to 11,000 Lbs.	11,000 to 12,000 Lbs.			
	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.			
7	1	10	21	22	12	3	3	.....	.....	.....	.....	72	31	5
8	.....	6	18	20	10	9	.....	.....	.....	.....	.....	63	24	4
9	.....	2	7	12	7	7	4	.....	.....	.....	.....	39	20	4
10	.....	.....	.....	3	8	3	4	3	2	1	.....	24	13	6
11	.....	.....	1	1	6	2	1	2	1	1	.....	15	11	3
12	.....	.....	.....	4	14	10	12	6	6	1	1	54	16	6
Total number of cows	1	18	47	62	57	34	24	11	9	3	1	267	.....	.....

A striking feature of this table is the proportion of cows still milking after 10 and 11 months activity.

TABLE CVII.—The yields in Milk and Fat of 64 Individual two-year old Heifers for Full Period of Lactation in 1908, in the Province of British Columbia, are classified as follows :—

Total Yield of Fat in Pounds.	Total Yield of Milk in Pounds.								Total Number of Heifers.	Number of Herds Represented.	Number of Associations.
	2,000 to 3,000	3,000 to 4,000	4,000 to 5,000	5,000 to 6,000	6,000 to 7,000	7,000 to 8,000	8,000 to 9,000	9,000 to 10,000			
	No. of Heifers.	No. of Heifers.	No. of Heifers.	No. of Heifers.	No. of Heifers.	No. of Heifers.	No. of Heifers.	No. of Heifers.			
75 to 100	2								2	2	2
100 to 125	1	2							3	3	3
125 to 150		3	1						4	4	2
150 to 175	2	7	4	2					15	10	4
175 to 200		7	7	3					17	12	5
200 to 225		1	1	3	2				7	7	4
225 to 250		1	2	3	1	1	1		9	8	4
250 to 275						1	1	1	3	1	1
275 to 300				2				1	3	2	2
300 to 325				1					1	1	1
Total number of Heifers	5	21	15	14	3	2	2	2	64		

This table indicates that 21 out of the 64 of these heifers produced between 3,000 and 4,000 pounds of milk: 38 gave over 4,000 pounds of milk, and two gave over 9,000 pounds. As regards yield of fat, 17 gave between 175 and 200 pounds, and 23 out of the 64 gave over 225 pounds.

In one herd were three heifers all giving between 7,000 and 10,000 pounds of milk, and between 250 and 275 pounds of fat.

In another herd were two heifers with remarkably differing yields: one gave 5,060 pounds of milk and 199 pounds of fat; the other gave only 2,760 pounds of milk and 152 pounds of fat.

While there are several promising heifers included in this table, it should be remembered that a minimum of 4,500 pounds of milk or 200 pounds of fat is what a good heifer is expected to yield.

The length of the milking period averages 9·4 months for those giving less than 4,000 pounds of milk, and 10·1 months for those giving over 4,000 pounds of milk. This suggests the advisability of inducing at least a nine or ten months' period, so as to fix that habit of a long season of production both for succeeding years, as well as for succeeding generations.

TABLE CVIII.—Comparisons between Herds of Ten Cows and Over in the Province of British Columbia, for Full Period of Lactation in 1908.

Name of Association.	Herd.	No. of Cows.	Total Yield of Herd.		Average Yield of Herd.			Average milking period in Months.	Average Age of Herd.	Yield of Best Cow.				Yield of Poorest Cow.			Age of Poorest Cow.
			Milk.	Fat.	Milk.	Test.	Fat.			Milk.	Test.	Fat.	Age of Best Cow.	Milk.	Test.	Fat.	
			Lbs.	Lbs.	Lbs.		Lbs.		Years.	Lbs.		Lbs.		Lbs.		Lbs.	
Comox	A	10	45,420	2066·0	4,542	4·5	206·6	10·1	5·7	5,665	4·7	267·1	7	3,605	5·1	187·0	4
"	B	14	80.570	3156·6	5,755	3·9	225·4	9·6	5·5	7,270	3·9	281·5	5	4,620	4·0	185·0	5
"	D	10	51,910	2159·0	5,191	4·1	215·9	10·5	6·7	6,773	4·7	322·0	9	3,615	4·7	172·5	6
"	G	17	72,760	3143·3	4,280	4·3	184·9	9·2	4·5	5,625	4·4	242·0	6	2,510	5·4	137·2	2
Chilliwack	A	15	96,458	3048·9	6,430	3·2	203·7	10·5	4·4	9,825	3·1	303·9	6	3,170	5·5	174·4	2
Cowichan	A	41	251,647	9993·5	6,138	4·0	243·7	11·5	6·1	9,895	2·6	257·1	5	4,790	5·0	185·7	4
"	F	10	57,600	2595·2	5,760	4·5	259·5	10·3	3·7	8,610	5·4	434·2	5	3,790	5·0	185·7	2
"	G	11	53,470	2495·2	4,861	4·6	226·8	11·0	6·1	6,213	4·6	285·9	7	4,351	4·3	189·1	7
"	I	10	58,665	2522·8	5,866	4·3	252·2	10·7	6·7	7,370	4·6	343·5	9	4,070	6·3	259·1	8
"	J	10	58,665	2522·8	5,866	4·3	252·2	10·7	6·7	7,370	4·6	343·5	9	4,940	4·0	199·7	6
Eden Bank	D	28	189,896	7613·2	6,782	4·0	271·9	10·8	5·3	10,030	3·5	357·7	11	2,835	3·3	95·0	2
"	E	22	152,548	5392·2	6,934	3·5	245·1	9·4	5·3	9,773	3·7	364·1	7	6,538	3·1	205·6	4
Richmond	A	30	302,309	9622·5	10,077	3·2	320·7	10·5	5·2	14,310	2·8	397·1	9				
Totals and Averages		218	1,413,253	53,808·4	6,942	3·6	246·8			8,446	3·8	321·6		4,067	4·4	178·9	

Probably the most striking feature of this table, No. 108, is the satisfactory average of herd A in the Richmond association, where all the thirty cows average over 10,000 pounds of milk, 3·2 test and 320·7 pounds of fat.

The lowest average is 4,280 pounds of milk, 4·3 test, 184·9 pounds of fat, in a herd of seventeen cows.

The large herds have the large averages: this province is evidently the home of some good dairymen.

Eight out of the twelve herds average 4·0 per cent of fat or over.

The average age of all the cows in each herd varies from 3·7 to 6·7 years. The herd with the youngest average age makes a creditable showing.

The highest yield of milk is found to be 14,310 pounds, testing 2·8 per cent of fat; while the best cow in another herd gives only 5,625 pounds of milk, the test is up to 4·4 per cent of fat.

With regard to the poorest cow in each herd, one 2-year old is responsible for a yield of only 2,510 pounds of milk, though it tests 5·4 per cent of fat. A second 2-year old gives only 2,835 pounds of milk containing only 95 pounds of fat. A third 2-year old is credited with 4,770 pounds of milk, 3·3 test, and 157 pounds of fat. These low yields are in sharp contrast with that of the last cow in the same column, 6,538 pounds of milk, 205·6 pounds of fat.

It is disappointing to find cows six, seven and eight years old appearing in this list of the poorest cow in each herd. Should not some of them be disposed of, or would they give better yields if differently handled?

The average yield of the best individual cow in each of the twelve herds stands at 8,447 pounds of milk, 321 pounds of fat: the average of all the lowest yields is only 4,068 pounds of milk, 179 pounds of fat; thus the average difference between the highest and lowest yield in each herd is 4,379 pounds of milk and 142 pounds of fat. Computing fat at 30 cents per pound, this indicates an average difference of $42.60 in the earning power of the best and poorest cow in each herd. This difference would be far greater if it were not for the appearance of the Richmond cow, with her yield of 6,538 pounds of milk, in this column of low yields: the production of this cow is higher than that of the three 'best' cows in the Comox and Cowichan associations.

The difference of $42.60 just noted is indicative of the urgent need of selection based on records of individual performance.

There are 218 cows included in this table with an average production of 246 pounds of fat. The average yield of fat from the poorest cow in each herd therefore falls just 67 pounds below, or about twenty dollars worth of fat. Assuming that there are 22,000 cows in the province, and that at least half of them could be made to yield, not twenty, but only ten dollars worth more butter fat, this would give an *additional income of one hundred and ten thousand dollars.*

TABLE CIX.—Comparisons between Herds of Four Cows and over in the Province of British Columbia, for a period of production of Eight Months, 1908.

Name of Association.	Herd No.	No. of Cows.	Total Yield of Herd.		Average Yield per Cow.			Yield of Best Cow.				Yield of Poorest Cow.			
			Milk.	Fat.	Milk.	Test.	Fat.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.
			Lbs.	Lbs.	Lbs.		Lbs.	Lbs.		Lbs.		Lbs.		Lbs.	
Chilliwack.....	A	8	37,028	1,189·5	4,628	3·2	148·7	6,665	2·9	190·9	8	3,411	3·5	119·7	.....
Cowichan.....	A	5	21,200	822·2	4,240	3·9	164·4	5,245	3·8	201·1	8	4,085	3·3	135·2	12
"	B	4	13,895	556·0	3.474	4·0	139·0	4,020	3·9	157·7	8	3,435	4·0	136·0	15
Comox	A	4	20,968	787·6	5,242	3·7	194·9	6,860	3·3	226·9	4	4,140	3·6	149·7	2
"	B	5	17,615	741·0	3,523	4·2	148·2	4,665	3·6	168·5	.....	2,640	3·8	101·4	.....
"	C	4	20,128	850·0	5,032	4·2	212·5	6,515	3·8	248·0	7	2,490	4·5	111·9	2
Eden Bank..... .	A	4	22,780	829·2	5,695	3·6	207·3	6,670	3·6	241·0	13	4,120	4·0	167·8	14
"	B	7	30,268	1,257·9	4,324	4·1	179·7	5,750	3·5	202·9	6	3,330	4·6	155·1	2
Averages and Totals	... ...	41	183,882	7,033·4	4,485	3·8	171·5	5,799	3·5	204·6	.....	3,456	3·9	134 6	

A Prince Edward Island Dairy Farm.

The average yield of the forty-one cows in table 109 is 4,485 pounds of milk and 171·5 pounds of fat; the lowest herd average is 3,474 pounds of milk and 139 pounds of fat, while the highest is 5,695 pounds of milk and 207·3 pounds of fat. In the column headed 'total yield of herd' will be seen how this difference affects the total. The four cows in herd A at Eden Bank produce 8,885 pounds of milk and 273·2 pounds of fat *more* than the four cows in herd B at Cowichan. This is equivalent to a difference of at least $22 in the earning power per cow in eight months.

While three old cows appear in the column of poorest yields, a 13-year-old is to be found as a 'best' cow at Eden Bank, giving 6,670 pounds of milk and 241 pounds of fat.

An average difference of 2,343 pounds of milk between the best and the poorest cow in the eight herds indicates the opportunity that exists, and should be taken advantage of, to bring all the cows in the herd nearer to a good uniform level of attainment.

ASSOCIATIONS IN NEW BRUNSWICK.

TABLE CX.—Total and Average Yield of 73 Cows tested Seven Months, 1908.

Associations.	No. of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield of Milk.	Average Test.	Average Yield of Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Penobsquis	16	44,702	2,078·9	2,793	4·6	129·9
Sussex	32	113,862	4,768·4	3,558	4·2	149·0
Springhill	5	10,270	470·1	2,054	4·6	94·0
Petitcodiac	20	60,022	2,299·0	3,001	3·8	114·9
Totals and averages	73	228,856	9,616·4	3,135	4·2	131·7

If butter fat is valued at 20 cents per pound, the twenty cows at Petitcodiac should have earned $136 *more* than they did to bring them up to the standard of the cows at Sussex.

TABLE CXI.—Total and Average Yield of Two Cows tested Eight Months.

Association.	No. of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield of Milk.	Average Test.	Average Yield of Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Sussex	2	8,605	288·2	4,302	3·3	144·1

TABLE CXII.—The yields of 75 Individual Cows for periods of Seven and Eight Months in New Brunswick Associations are classified as follows:—

Number of Months.	Total Yield of Milk in Pounds.					Total Number of Cows.	Number of Herds Represented.	Number of Associations.
	1,000 to 2,000	2,000 to 3,000	3,000 to 4,000	4,000 to 5,000	5,000 to 6,000			
	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.	No. of Cows.			
7	4	28	34	6	1	73	12	4
8	.....	.....	.....	2	.....	2	1	1
Total number of cows	4	28	34	8	1	75	.....	.....

TABLE CXIII.—Comparisons between Two Herds in Penobsquis, New Brunswick, Association for Seven Months, 1908.

Herd.	No. of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	9	2,811	5·0	140·3	.....	3,795	4·2	158·5	.....	2,290	4·4	99·7
B	6	2,791	4·7	132·6	4	3,080	5·0	154·0	4	2,390	4·8	115·3

TABLE CXIV.—Contrast, Penobsquis, New Brunswick, Association.

—	Lbs. Milk.	Lbs. Fat.	Age of Cow.
7 months, best yield	3,795	158·5	
7 " poorest yield	2,495	119·4	12 years.

TABLE CXV.—Comparisons between Herds in Petitcodiac, New Brunswick, Association for Seven Months, 1908.

Herd.	No. of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	5	2,215	4·9	109·5	10	2,972	4·8	143·7	2	1,613	5·3	85·3
B	5	3,521	3·5	122·0	6	3,900	3·4	133·2	3	2,766	3·6	98·8
C	5	3,097	3·5	109·4	2	3,415	3·2	109·1	4	2,750	3·9	107·8
D	5	3,171	3·7	118·8	5	4,430	3·9	172·3	2	2,380	3·8	90·6

The average difference between the best and the poorest yields in these four herds is 1,302 pounds of milk and 44 pounds of fat in the seven months.

Note that the highest yield in herd C is from a 2-year-old heifer, while the lowest yield in the same herd is from a 4-year-old.

TABLE CXVI.—Contrast, Petitcodiac, New Brunswick, Association.

——	Lbs. Milk.	Lbs. Fat.	Age of Cow.
7 months, best cow	4,430	172·3	5 years.
7 " poorest cow	2,481	115·5	6 "

TABLE CXVII.—Comparisons between herds in Sussex, New Brunswick, Association for Seven Months, 1908.

Herd.	No. of Cows in Herd.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	6	3,396	3·5	119·5	7	3,680	4·0	145·9	6	2,870	3·2	92·3
B	6	3,205	4·5	144·5	4	3,630	4·7	169·2	6	2,770	4·2	115·0
C	7	4,165	4·1	169·6	6	5,120	3·6	182·8	7	3,580	5·0	179·8
D	10	3,731	4·3	162·0	9	4,640	5·0	233·9	2	2,510	4·5	112·6

In herd B the difference in yield between the best and poorest cow is 54 pounds of fat.

In herd C the difference is 2,130 pounds of milk.

TABLE CXVIII.—Contrast, Sussex, New Brunswick, Association.

——	Milk.	Fat.	Age of Cow.
	Lbs.	Lbs.	
7 months, best cow	5,120	182·8	6
7 " poorest cow	2,482	102·4	8

The *difference* between these two cows amounts to 2,638 pounds of milk and 80·4 pounds of fat in seven months.

ASSOCIATIONS IN PRINCE EDWARD ISLAND.

TABLE CXIX.—Total and average yield of Eleven Cows tested Seven Months, 1908.

Associations.	No. of Cows.	Total Yield of Milk.	Total Yield of Fat.	Average Yield of Milk.	Average Test.	Average Yield of Fat.
		Lbs.	Lbs.	Lbs.		Lbs.
Marshfield	6	22,128	907·1	3,688	4·1	151·1
New Glasgow	5	18,682	623·7	3,736	3·3	124·7
Totals and averages	11	40,810	1,530·8	3,710	3·7	139·1

TABLE CXX.—Total and average yield of 13 Cows tested Eight Months, 1908.

Marshfield	13	61,245	2,292·1	4,711	3·7	176·3

TABLE CXXI.—Total and average yield of 15 Cows tested Nine Months, 1908.

Marshfield	15	67,372	2,635·8	4,491	3·9	175·7

TABLE CXXII.—Total and average yield of 5 Cows tested Ten Months, 1908.

Marshfield	4	21,803	828·4	5,450	3·8	207·1
New Glasgow	1	5,887	194·6	5,887	3·3	194·6
Totals and averages	5	27,690	1,023·0	5,538	3·7	204·6

TABLE CXXIII.—Total and average yield of 5 Cows tested Twelve Months, 1908.

Marshfield	3	16,891	609·6	5,630	3·6	203·2
New Glasgow	2	11,003	395·5	5,502	3·6	197·8
Totals and averages	5	27,894	1,005·1	5,578	3·6	201·0

TABLE CXXIV.—Comparisons between two herds in Marshfield, P.E.I., Association for Nine Months, 1908.

Herd.	No. of Cows.	Herd Average.			Yield of Best Cow.				Yield of Poorest Cow.			
		Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.	Age.	Milk.	Test.	Fat.
		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.		Lbs.
A	4	4,605	3·8	176·0	4	5,315	3·8	206·4	3	4,080	4·0	163·8
B	4	3,237	4·3	138·4	8	4,067	4·3	176·1	3	2,720	4·2	114·2

In herd B the 3-year-old is 1,340 pounds of milk and 61·9 pounds of fat lower than the record of the best cow in that herd.

There is also a marked difference in the average yields of these two herds.

TABLE CXXV.—Contrasts, Marshfield, P.E.I., Association.

—	Lbs. Milk.	Lbs. Fat.	Age of Cow.
9 months, best cow	6,889	251·2	5 years.
9 " poorest cow	3,127	122·8	10 "
Same herd, 8 months, best cow	6,647	244·8	5 "
" 8 " poorest cow	2,512	102·9	7 "

The above two poor yields indicate the necessity for discovering individual performance by means of weights and samples. What profit did these two cows give?

TABLE CXXVI.—Contrasts, New Glasgow, P.E.I., Association.

—	Lbs. Milk.	Lbs. Fat.	Age of Cow.
7 months, best cow	5,395	166·4	3 years.
7 " poorest cow	3,036	100·9	3 "
Same herd, 12 months, best cow	6,418	217·9	6 "
" 12 " poorest cow	4,585	177·6	12 "

TABLE CXXVII.—The yields of 49 Individual Cows for periods of 7, 8, 9, 10 and 12 months in Prince Edward Island Associations are classified as follows:—

Number of Months.	Total Yield of Milk in Pounds.					Total Number of Cows.	Number of Herds Represented.	Number of Associations.
	2,000 to 3,000 Lbs.	3,000 to 4,000 Lbs.	4,000 to 5,000 Lbs.	5,000 to 6,000 Lbs.	6,000 to 7,000 Lbs.			
	No. of Cows.	No. of Cows.	No. of Cows	No. of Cows.	No. of Cows.			
7	1	6	3	1	...	11	5	2
8	1	3	3	5	1	13	5	1
9	1	2	8	2	2	15	5	1
10	...	...	1	3	1	5	4	2
12	...	...	1	3	1	5	2	2
Total number of cows	3	11	16	14	5	49		

TABLE CXXVIII.—The yields of 14 Individual Cows for Full Period of Lactation in 8, 9, 10 and 11 months in Prince Edward Island Associations are classified as follows:—

Number of Months.	Total Yield of Milk in Pounds.			Total Number of Cows.	Number of Herds Represented.	Number of Associations.
	3,000 to 4,000.	4,000 to 5,000.	5,000 to 6,000.			
	No. of Cows.	No. of Cows.	No. of Cows.			
8	1		1	2	2	2
9		1	3	4	1	1
10	2		3	5	3	2
11			3	3	3	2
Total number of cows	3	1	10	14		

REPORT

OF THE

DAIRY AND COLD STORAGE COMMISSIONER

FOR THE

FISCAL YEAR ENDING MARCH 31

1909

PART II—REPORT OF THE ASSISTANT DAIRY COMMISSIONER.

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Summary of Work—The Planting of a Family Orchard in Eastern Quebec—Dairymen's Convention—Agriculture as a Career for our Young Men—Horticulture—Lectures to Farmers' Clubs—Factory Syndicate Inspection.

PART II.—REPORT OF THE ASSISTANT DAIRY COMMISSIONER.

(Mr. J. C. Chapais.)

St. Denis (en bas), County of Kamouraska, P.Q.,
March 31, 1909.

Mr. J. A. Ruddick,
Dairy and Cold Storage Commissioner,
Ottawa.

Sir,—I beg leave to present you my nineteenth report as Assistant Dairy Commissioner, which covers the period of twelve months between April 1, 1908, and March 31, 1909.

SUMMARY OF WORK.

During the last twelve months, with the exception of one visit to Ottawa, I have devoted all my time to the province of Quebec, and have made 138 visits to 75 localities in 21 counties. I have delivered 220 lectures before 13,702 persons, 295 of whom were butter and cheese makers. The average attendance at these lectures was sixty-two persons. Of the seventy-five localities, I visited thirteen for the first time. I have travelled 6,172 miles in performing my work.

The following is a list of the counties and localities in which I have delivered lectures, with reference letters indicating the purpose of the meetings:—

Table of Visits and Lectures.

PROVINCE OF ONTARIO.

Counties.	Localities.	Visits.	Lectures.	Reference Letters.
Carleton	Ottawa	2	2	a, e

PROVINCE OF QUEBEC.

Arthabaska	Victoriaville	1	2	a
Bellechasse	St. Charles	2	3	b, c
	St. Damien	1	1	c
	St. Gervais	1	1	c
	St. Lazare	1	1	c
	St. Raphael	1	1	c
Berthier	St. Damien	4	8	g
	St. Gabriel	2	4	g
Huntingdon	Covey Hill	1	1	a, e
	Hemmingford	1	1	a, e
Jacques Cartier	Macdonald College	1	1	a, e
Joliette	St. Ambroise de Kildare	1	2	g
	St. Cléophas	1	2	g
	St. Félix de Valois	1	2	g
	St. Jean de Matha	8	15	b, g
	Ste. Beatrice	2	4	g
	Ste. Elizabeth	2	4	g
	Ste. Emélie	5	10	g
	Ste. Mélanie	4	8	g

PROVINCE OF QUEBEC—*Continued.*

Counties.	Localities.	Visits.	Lectures.	Reference Letters.
Kamouraska	Kamouraska	2	3	c, g
	Mont-Carmel	3	5	c, g
	Rivière Ouelle	2	3	c, g
	St. Alexandre	4	8	c, g
	St. André	3	5	c, g
	St. Bruno	2	3	c, g
	St. Elenthère	1	2	g
	St. Germain	2	3	c, g
	St. Onésime	2	2	g
	St. Pacôme	5	7	b, c, g
	St. Pascal	2	3	c, g
	St. Philippe de Néri	2	3	c, g
	Ste. Anne de la Pocatière	3	5	c, f, g
	Ste. Hélène	4	7	c, g
Lévis	St. Romuald	1	1	b
L'Islet	L'Islet	1	1	c, f
	St. Aubert	1	1	c
	St. Cyrille	1	1	c
	St. Eugène	1	1	c
	St. Jean Port Joli	1	1	c
	St. Roch des Aulnaies	1	1	c
	Ste. Louise	1	1	c
Lotbinière	St. Jean Deschaillons	1	2	g
Megantic	Lyster	1	.....	.....
Montmagny	Cap St. Ignace	1	1	c
	Montmagny	1	1	b
	Notre Dame du St. Rosaire	1	1	c
	St. Francois	2	2	c, f
	St. Pierre	1	1	c
	St. Euphemie	1	2	c
Montmorency	Chatean Richer	1	1	b
Nicolet	Bécancour	6	11	b, g
	Gentilly	3	6	g
	Précieux Sang	1	2	g
	St. Grégoire	6	12	g
	St. Pierre les Becquets	2	4	g
	Ste. Angèle	2	4	g
	Ste. Gertrude	3	6	g
	Ste. Marie de Blandford	1	2	g
Quebec	Charlesbourg	1	2	b
Richmond	Asbestos	1	1	c
	Danville	1	1	d
	St. George de Windsor	1	1	c
Témiscouata	Notre Dame du Portage	1	2	g
	St. Antonin	1	2	g
Two Mountains	La Trappe, Oka	2	4	a, f
Vandreuil	Rigaud	1	1	b
Wolfe	North Ham	1	1	c
	South Ham	1	1	o
	Notre Dame de Ham	1	1	c
	St. Adrien de Ham	1	1	c
	St. Camille de Wotton	1	1	c
	St. Fortunat	1	1	c
	St. Julien	1	1	c
	Wotton	1	1	c
21	75	138	220	

Reference letters indicate:—(a) Provincial meetings. (b) County and district meetings. (c) Farmer's club meetings. (d) Parish meetings. (e) English lectures. (f) Visits to colleges and schools. (g) Factory inspections and lectures.

This table shows that I have delivered (*a*) eleven lectures at provincial meetings; (*b*) twelve at county and district meetings; (*c*) forty at farmers' club meetings; (*d*) one at a parish meeting; (*e*) five lectures in English; (*f*) seven in colleges and schools; and that I have made seventy-seven factory inspections, in the course of which I have delivered 154 lectures to the factory patrons.

PROVINCIAL MEETINGS.

The first of the provincial meetings I attended during the past twelve months was the summer meeting of the Pomological and Fruit Growing Association of the province of Quebec, held at Hemmingford and Covey Hill, Huntingdon county, on the twelfth and thirteenth of August, 1908.

I may say here that, as we have a fruit division in the Dairy and Cold Storage Commissioner's Branch of the Department of Agriculture at Ottawa, I am often requested to deliver lectures on various topics relative to fruit culture and forestry. At the Huntingdon county convention, just mentioned, I delivered the following lecture.

THE PLANTING OF A FAMILY ORCHARD IN EASTERN QUEBEC.

'As a member of the Pomological and Fruit Growing Association of the province of Quebec, I have always considered it my duty to give all the information possible to members, and even outsiders, who apply for it. That is why I am here to-day to give a lecture on the planting of family orchards. I do it in order to reply to many questions often asked by members in the eastern part of our province, who suppose I can answer them, knowing that I live in that district and that I own an extensive orchard, to which I have often had occasion to refer in the reports of our society. I do it all the more willingly because I have always advocated the planting of an orchard on every farmer's land.

'From the western boundary of our province, as far as the gulf, with the exception of the Lake St. John region and the district contiguous to it on the west, in the same latitude, we can grow grafted apple trees if we make a good selection of those suitable for the various latitudes. With respect to my own district, I have for a long time had the proof of my assertion. To-day I wish to explain in a few words how to plant, almost anywhere in the eastern part of the province, with the exception I have just mentioned, an orchard which will provide enough fruit of various kinds to permit of an agreeable and wholesome element of variety in the family diet.

SITE AND SOIL.

'The section I have in mind in writing this paper is the one lying east of a line drawn on the map of the province of Quebec, from top to bottom, passing 72 degrees 30 minutes of longitude, through the city of Three Rivers, on the north shore of the St. Lawrence, and through about the middle of Compton county, on the southern boundary line of the province. In that section we must select a light, rather than a heavy soil; a well drained piece of land and a site offering shelter from eastern winds.

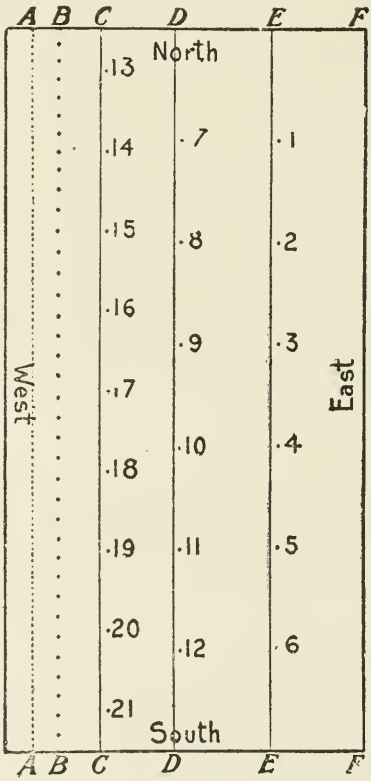
SIZE OF THE ORCHARD.

'From what we know about the number of persons in the average eastern family, we count eight persons for each home, including hired help. For such a family a piece of land measuring an arpent in length by half an arpent in width, in orchard, to contain the various kinds of large and small fruits, would provide enough fruit for one year. We give here an outline of the plan of such an orchard, with reference figures and letters showing how it should be planted. We use the arpent for measure because it is the common measure used by all land owners in the greater part of the district about which we are writing.

'The square arpent is 180 by 180 French feet and covers an area of 32,500 square feet, giving for half an arpent an area of 16,200 French square feet. For the information of those who would like to make a comparison between an arpent and an acre, let us say that the acre is 1·1937 arpents and an arpent is ·8380 of an acre.

'The French foot is 12·79 English inches; so that the arpent is really 191·85 English or Canadian feet in length.

'In the outline of the orchard given in the accompanying diagram, the line FF, which is the eastern limit of the orchard, must in most cases, except where the site offers a natural shelter from eastern winds, be made a hedge of spruces placed three feet apart and not more than 20 inches in growth, in order to insure success. The line EE is to be planted with apple trees 25 feet apart from each other and in rows 25 feet apart. The same thing is to be done with line DD. Line CC will be planted with plum and cherry trees. This line is placed at a distance of 20 feet from line



DD, and the trees in it are also placed 20 feet apart. The next line, BB, is at a distance of 10 feet from the last one, and is to be planted with small fruit bushes five feet apart. Lastly, the dotted line AA is planted with strawberries, the plants being placed 18 inches apart, and the row being 5 feet from the one planted with small fruit bushes.

'Here is the most important part of the present paper, since the selection of varieties is chiefly the key to success.

'In line EE are to be planted, at the points marked 1 and 2, Yellow Transparent apple trees, at 3 and 4 Lowland Raspberry, and at 5 and 6 Duchess.

'In line DD, at points 7 and 8, should be planted Alexander, at 9 and 10 Fameuse, and at 11 and 12 Wealthy.

'In line CC are to be planted, at points 13 and 14, plum trees of the Blue Damson variety, at 15 and 16 Reine Claude de Montmorency, and at 17 one Early Yellow.

'In the same line CC, at points marked 18 and 19 should be planted two Early Richmond, and at points 20 and 21, two Montmorency cherry trees.

'Line BB is to receive 36 bushes of small fruits, consisting of nine Downing gooseberries, nine Fay's Prolific red currants, nine Black Champion currants and nine Marlborough red raspberries.

'The last line, AA, will be a row of 120 Sharpless and Williams strawberry plants.

'We would advise farmers to plant another piece of land by itself in those varieties of small fruits.

'I have only two remarks to make in explanation of two points alluded to in the present paper. The first one is about the selection of varieties. All the varieties of fruit mentioned have been subjected to experimental culture during the last twenty years in many localities in the eastern section of the province of Quebec, and have always proved satisfactory. It is to be hoped that a similar paper regarding the western part of the province will be given by those who have had experience in that section.

'The second remark is about the distance that apple trees should be planted apart from each other. I can only repeat what I wrote in another of my lectures on that subject; we have already advocated never having more than 25 feet between apple trees in a row. Now, we know that 40 feet is the distance generally recommended. We found that in our severe climate they must be planted close together, in order to offer protection from the heavy, damp winds of our region. We are often told that when planted as close as that they soon intermingle their branches, prevent the fruit from getting enough air and light and are an obstacle to the cultivation and spraying of the orchard. To this we answer that there is so much difference between our climate and that of the west of the province that none of those disadvantages of close planting are to be feared. We have seen in the County of Essex, in Ontario, an orchard of twenty years' growth, where the trees were set 40 feet apart and had all their branches intermingled, so that not a ray of sunshine could reach the ground. We have seen around Montreal a few orchards planted in the same way for twenty years, in which the trees were not yet intermingling their branches. Then, we have in our own orchard, on good, rich and well drained land, trees planted for twenty years, 25 feet apart, and having as yet no intermingling branches. This shows the great difference there is in the growth of trees in different climates. Let western people plant their apple trees 40 feet apart, but let us plant ours 25 feet. Both systems are beneficial where they are needed.'

DAIRYMEN'S CONVENTION.

On January 7 and 8, 1909, I attended the second provincial meeting for the present fiscal year, at Victoriaville, where the 27th annual convention of the Dairymen's Association of the province of Quebec was held, and I delivered a lecture on 'Water in Connection with Dairying.' This lecture being rather lengthy, I will give only a short synopsis of it here. The whole of it is printed in the annual report of the Dairymen's Association.

WATER IN CONNECTION WITH DAIRYING.

'Importance of water in connection with the dairy industry.—Necessity of water for the growth of plants for feeding cattle.—Usefulness of water in the feeding of

the dairy cow.—Necessity of giving only pure water to the cows.—Quantity of water necessary for the dairy cow.—Bad effect of the lack of water in the feeding of the dairy cow.—Bad effect of poor water in the feeding of the dairy cow.—How to water the cows.—Temperature of the water given to cows.—Water for the cooling and heating of milk.—Water for the cleaning of butter and cheese factories and of the utensils used in making these products.—Necessity of having water as pure as possible for filling boilers.—Notes on the water used for washing butter and curds.—Water for the use of butter and cheese makers.—Study of the influence of forests on the distribution of water, considered as one of the most important factors of the dairy industry'.

At the same convention I submitted an article published in 'Hoard's Dairyman' of December 18, 1908, which shows that the use of farm separators is becoming a menace to the dairy industry on account of the fact that, contrary to the hope entertained by many dairymen that these machines would be beneficial to dairying, they are proving to be a cause of poor buttermaking, because farmers who use them do not understand the necessity of keeping them clean and of taking good care of their cream, some farmers going so far that they consider it more important to get better skimmed milk for their animals and have to convey their cream only once or twice a week to the factory than to get first class butter from that cream. I submitted that article to the meeting because one of the lecturers at the convention had expressed the same opinion in regard to our own dairy interests, and in order to give a warning to some of our dairymen who are very negligent about the use of their separators and the care of their cream.

AGRICULTURAL INSTITUTE AT OKA.

The third provincial meeting I attended was that held at Oka, for the inauguration of the Agricultural Institute of the Trappist Fathers of 'La Trappe,' which took place on February 9th. This meeting was followed, at the same place, by a meeting of all the agricultural lecturers of the Quebec Department of Agriculture. I was invited to deliver a lecture at the inauguration of the institute and two addresses at the meeting of the agricultural lecturers, which was held on February 10th, 11th, 12th and 13th. My lecture at the inauguration was entitled, 'Agriculture as a Career for Our Young Men.' I gave it specially for the sake of the students of the institute. The following is the text of that lecture:—

AGRICULTURE AS A CAREER FOR OUR YOUNG MEN.

'For a long time agriculturists and rural economists have been studying the question of teaching agriculture in schools. As agriculture is suffering for want of manual labour, on account of the migration of farm workers to the towns and manufacturing centres and on account of the aversion felt by many farmers' sons towards the calling of their parents, it has been thought that it would be useful to have a lecture delivered in the colleges and the larger rural schools on the advantages that agriculture offers as a career to the young men of our country. The provincials of seven teaching institutions of brothers in the province of Quebec, who have under their direction a great number of colleges and schools, and also many of the superiors of classical colleges in the country, asked me some years ago to devote a little of my time, along with my ordinary work, to delivering to their pupils a lecture of that kind, and I have complied with their wish.

'Since the year 1900, I have visited 58 colleges and schools for that purpose and have delivered before 8,500 people a lecture which I think should be useful here this evening to an audience composed of men whose mission is to work for the diffusion of principles tending to develop the love of the land amongst the agricultural class, which it is their duty to teach.

'The only perfect man who ever lived in this world, with the exception of God as man, was Adam before his fall. Now, Adam was a cultivator. Consequently, agriculture has the noblest and oldest origin. All the great patriarchs of the Old Testa-

ment were shepherd-kings and therefore farmers. The nations of antiquity, such as the Egyptians, the Greeks, the Romans, ascribed much honour to agriculture. We see that many of the most famous warriors, such as Cincinnatus, the Roman, left the plough to fight for their country and save it from its enemies and then came back to their fields. Even now, the greatest names of France, Russia, England, &c., are enrolled on the lists of the great national agricultural societies and seek to win at exhibitions the highest prizes for the produce of their lands and animals. Thus we see in the lists of prize winners at the exhibitions of the Royal Agricultural Society of England, the names of the late illustrious Queen Victoria and of her son Edward VII, our glorious King.

'Our ancestors were, most of them, farmers and it is through the cultivation of the soil that they have left us a great and prosperous country. Every agricultural country becomes rich and its population is strong and vigorous. On the other hand, a nation that lays aside agriculture loses its wealth and strength. If we wish to see industry and commerce prosperous, we must continue to give predominance to agriculture, which should always occupy the first place in the attention and favour of governments.

'The tiller of the soil is strong, vigorous, independent and happy, more than any other individual in society. The farmer is the foster father of mankind and in that capacity cannot be dispensed with by society. Without the farmer nobody can perform the mission assigned to him by God in this world, because men must eat in order to live and work, and it is the farmer that feeds mankind. It is a mistake to believe that a farmer can be ignorant with impunity. To be a good farmer he has need of all sciences, though often without knowing it. Geology, botany, entomology, chemistry, mechanics, meteorology, &c., are all sciences which contribute to success in agriculture. Still worse is the prejudice that leads our young people to believe that it is humiliating to go back to the tillage of the soil after having got the advantage of an education. The better educated a farmer is, the better farmer is he. After the ministers of religion, the tiller of the soil occupies the first place in society. The proof of this is given by God Himself, Who leaves the lawyer, the doctor, the notary, the artist, the workmen, &c., to begin, continue and complete their work without aid, from the material point of view, while to the tiller of the soil alone he gives his immediate help to make the crop of grain, the seed of which the farmer has sown, grow and mature, and this crop the farmer has afterwards only to reap.'

May I be allowed to quote here an appreciation of the lecture which I have just summarized, as it appeared in one of the great daily newspapers of this province.

'Agriculture in Schools.—For the past few years Mr. J. C. Chapais, Assistant Dairy Commissioner, has delivered lectures on the dignity, importance and advantages of agriculture, in educational institutions, in commercial colleges and even in some of the classical colleges in the country. This is an excellent movement, which augurs well for the future of agriculture and, consequently, of our country, which has been and must remain an agricultural country in order to continue its grand and noble mission.

'We must teach the growing generation to love and honour agriculture; we must teach it the history of agricultural nations.

'When the child understands well the important part played by agriculture in this world and the dignity of his position as a farmer's son, the prejudice that agriculture is inferior to other occupations will be eradicated.'

In this appreciation there are three words that I wish to emphasise, because they suggest to me a few remarks. These words are, '*in commercial colleges.*' There is nothing to be said against delivering lectures in the commercial colleges of cities and towns, to demonstrate to young men that agriculture may be for some of them an advantageous and noble career; but a thing to be deplored is that we have to deliver such lectures in rural commercial colleges. Nobody has ever thought of establishing

agricultural schools in cities. Why, then, are commercial colleges established in the country? (The reference is to the province of Quebec. J. A. R.)

Without entering into a discussion of that 'why,' let us say that it is painful for the friends of agriculture to note that our teaching institutions establish such commercial colleges in the country and offer to our farmers a programme in which it is claimed that after taking a three or four years' course their sons are competent to work in banks, factories, stores, railway stations, and government offices, and earn good salaries.

Everybody knows that the boys that are sent to take such courses in those colleges are selected from amongst the most intelligent in each family. Hence follows a constant drain of the best element of the agricultural class, to the great detriment of agriculture and for the benefit of the urban population.

Let us have many country colleges; there is no objection to that; but let them not bear the name 'commercial college,' and do not allow them to allure the pupils by the glamour of that essentially commercial education which, once acquired, makes them believe that they would humble themselves were they to return to the farm from which they came. There is an idea which we submit to the serious attention of our educators who are charged with the education of our rural population.

The day after delivering that lecture I gave another one at the meeting of the agricultural lecturers of Quebec, on Forestry. Reference will be made to that lecture in another part of the present report.

I will mention here a meeting I attended at the Central Experimental Farm, Ottawa, in February and March, where I met the lecturers of the Quebec Farmers' Institutes; and another one, also in Ottawa, where I conferred with Messrs. Barr and Bouchard on the treatment of milk in connection with cheesemaking.

The last provincial meeting I attended was the winter convention of the Quebec Society for the Protection of Plants from Insects and Fungous Diseases. This was held at Macdonald College on March 10th, and I delivered a lecture there on 'Anguillulidae' and especially on one of these worms named 'Teterodera.' These are microscopic worms found in various plants and especially on clover. These worms are known by the common name of eel-worms and have not yet been the subject of much investigation.

COUNTY AND DISTRICT MEETINGS.

I attended, this year, twelve county and district meetings. The first was one for the purpose of organizing a horticultural society in Kamouraska county, and it was held at St. Pacôme, on April 13, 1908. The following is a synopsis of some of the arguments I gave to induce the farmers of Kamouraska county to enter their names in the list of members of the new society.

Horticulture is one of the most important branches of agriculture. It is divided into many branches, which are all of great interest to farmers.

The first branch of horticulture is vegetable gardening. There should be a good sized vegetable garden near the home of every farmer. We generally eat too much meat and bread and we should always have on our tables an ample supply of all kinds of vegetables. All doctors agree on that point.

Then comes market gardening, which is a source of profit for all farmers whose land is in proximity to cities, which always pay well for all kinds of vegetables.

Horticulture has another branch, which may seem less important than the two first mentioned, though it is not. That branch is floriculture, or the culture of flowers. Besides the pleasure derived from that branch of horticulture, the farmer finds in it also a great source of profit, for there is always a great demand on the market for flowers and ornamental plants.

Fruit growing is probably the most important branch of horticulture. Fruit in large quantities should form part of the diet of every family, especially for the sake of the children, who are so fond of it and who benefit so much by its use. A

Edwin Caswell, one of the pioneer cheese buyers of Ontario, who carried on business at Ingersoll, Ont., for many years.

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well organized small orchard on a farm can furnish fresh fruit on the farmer's table for almost the whole year. Then, there is much profit to be derived from a well kept orchard, as there is always a steady demand on markets for good fruit.

Some may be surprised to hear that bee-keeping is regarded as a branch of horticulture. It is true, nevertheless, and there is good reason for it. Not only does the bee produce honey and wax, but it is also the best agent of fecundation of the blooms on fruit trees and thus assures the orchard owner of a good crop of fruit.

Now, all these are general considerations about horticulture. But there is more than that in it, if we place ourselves at another point of view to discuss its merits. In the eastern districts of the province of Quebec we begin to use our vegetables and fruits much later than they do in the western districts, on account of the lateness of our seasons compared with theirs. To speak only of asparagus, strawberries, cherries and plums, we can put them on the Montreal, Toronto and all western markets a whole month later than they have them from their own districts; so we are sure to get good prices for our late vegetables and fruits.

The only thing to do in order to make a paying business of horticulture in all its branches is to learn it, and the best means of doing that is to become members of our local horticultural societies.

COUNTY MEETINGS.

I held two county meetings, specially called by myself, one at St. Jean de Matha, Joliette county, on June 2nd, and one at Bécancour, Nicolet county, on June 18th. The first one was held to address the buttermakers of Joliette county in a joint meeting with Mr. J. D. Leclair, General Inspector of Creamery Syndicates of the province of Quebec. The second one was held to meet the cheesemakers of Nicolet county in a joint meeting with Mr. Elie Bourbeau, General Inspector of Cheese Factory Syndicates in the same province.

On January 27th, I attended my fourth county meeting for the present year. It was held at Rigaud, Vaudreuil county, where all the farmers' clubs of that county, who have formed among themselves a co-operative society, held their annual convention. I had been specially invited to that meeting by the federal member, Mr. Boyer, to deliver my lecture on forestry, already mentioned in this report.

The fifth county meeting I attended was the second annual meeting of the Horticultural Society of the County of Kamouraska, the first one, for organization, having been held last April, as already mentioned. This second meeting was held at St. Pacôme, on the 19th February last.

The next seven county lectures I delivered this year were given at seven institute meetings, as follows:—One at Montmagny, Montmagny county; two at St. Charles, Bellechasse county; one at Chateau Richer, Montmorency county; two at Charlesbourg, Quebec county, and one at St. Romuald, Lévis county. This year I have taken but little part in these farmers' institutes, having been ailing the whole month of January and part of February on account of an accident which befell me at the end of December, when I had a very bad fall on the ice. Consequently I could not undertake the work I had been appointed to do at the head of my delegation, and I had to leave it to another.

LECTURES TO FARMERS' CLUBS.

Apart from the work of syndicate inspection done this year, the larger part of my lecturing work was for farmers' clubs, of which I have visited forty. I will divide the report of that work into three parts, as it assumes three different phases.

First, I was instructed by the department last fall, at the request of the Horticultural Society of L'Islet county, to deliver a series of lectures on the forestry question, and I delivered those lectures in seventeen localities, as follows:—

Counties.	Localities.
Bellechasse	St. Charles.
	St. Damien.
	St. Gervais.
	St. Lazare.
	St. Raphaël.
L'Islet	L'Islet.
	St. Aubert.
	St. Cyrille.
	St. Eugène.
L'Islet	St. Jean Port Joli.
	St. Roch des Aulnaies.
	Ste. Louise.
Montmagny	Cap St. Ignace.
	St. François.
	St. Pierre.
	St. Euphémie.
Vaudreuil	Rigaud.

That series of lectures was organized by Mr. Auguste Dupuis, president of the Horticultural Society of L'Islet county, who sent the following circular to the parish priests of all the above-mentioned localities:—

VILLAGE DES AULNAIES, ..., 1908.

Reverend .....

Parish Priest,

.....

DEAR SIR:—

The Horticultural Society of L'Islet county, being alarmed at the damage done to our forests by wholesale deforestation for the manufacture of pulp and by their devastation by fires, which occur almost every year in various localities of our province, has thought it in the public interest to obtain from the Honourable Mr. Fisher, federal Minister of Agriculture, the services of Mr. J. C. Chapais to deliver a series of lectures on deforestation, its bad effects and the way to prevent them.

I now beg leave to ask if you will announce next Sunday that such a lecture will be given in your parish on ..... at 7 o'clock in the evening, and advise Mr. Chapais as to the place where the meeting will be held.

Believe me, sir,

Respectfully yours,

(Signed) AUGUSTE DUPUIS,

President, Horticultural Society of L'Islet County.

As to the results to be anticipated from those lectures, I quote here a short sentence from one of our daily newspapers: 'The sound of alarm spread by the lecture about untimely deforestation, has greatly moved the people, and the wholesale timber-cutting will now be strictly looked after, if we may judge from the firm determination of those who are interested in having the law obeyed.'

This series of lectures was delivered in November, except the lecture at Vaudreuil, which was given in January.

The second series of lectures to farmers' clubs was given in the following localities, most of them in the month of December:—

Counties.	Localities.
Kamouraska	St. Alexandre.
Montmagny	Notre Dame du St. Rosaire.
	St. Euphémie.
Richmond	Asbestos.
	Danville.
	St. Georges de Windsor.
Wolfe	Ham Nord.
	Ham Sud.
	Notre Dame de Ham.
	St. Adrien.
	St. Camille.
	St. Fortunat.
	St. Julien.
	Wotton.

The lecture given to these farmers' clubs was of a mixed character. It was divided into three parts, the first dealing with the importance and the description of a good system of rotation; the second with the necessity and the rules for a good selection of farm animals, and the third with the good derived from cow-testing associations and with the rules to be followed in organizing them. These are all old subjects already mentioned in previous reports.

The third series of lectures to farmers' clubs was given in March, following instructions received from the department, at the request of the Horticultural Society

of Kamouraska county, which asked that I deliver lectures in all the parishes in Kamouraska county, in order to develop the progress of horticulture. In consequence of that request, I delivered twelve lectures in the following parishes in Kamouraska county:—

Kamouraska.	St. André.	St. Pascal.
Mont Carmel.	St. Bruno.	St. Philippe.
Rivière Ouelle.	St. Pacôme.	St. Anne de la Pocatière.
St. Alexandre.	St. Germain.	St. Hélène.

Before closing this part of my report, dealing with farmers' clubs, I beg leave to remark that I find those useful institutions established almost everywhere now. Of all the parishes visited this year in the province of Quebec, I found only one where there was no farmers' club.

I have distributed amongst the members of farmers' clubs eleven hundred copies of bulletin No. 21 of our branch, on records of cow-testing associations.

VISITS TO COLLEGES AND SCHOOLS.

In the summary I have written in the present report, of one of my lectures, entitled 'Agriculture as a Career for our Young Men,' I mention the fact that I have often been asked to deliver lectures in schools and colleges on various topics connected with agriculture. Seven of my lectures this year were given in such institutions, viz.: at Ste. Anne de la Pocatière College, Kamouraska county; at L'Islet College, L'Islet county; at St. François Convent, Montmagny county; and at La Trappe or Oka Agricultural Institute, Two Mountains county.

The lectures given in those establishments were on: 'Agriculture as a Career for Young Men,' 'Domestic Science,' 'Forestry,' and 'Horticulture.'

FACTORY SYNDICATE INSPECTION.

From May 23rd to July 19th, I visited and inspected 76 cheese factories comprising three syndicates in the counties of Joliette, Berthier, Nicolet, Lotbinière, Kamouraska and Temiscouata.

I made 78 visits and met 196 cheese and buttermakers, 5,775 factory patrons and members of their families, delivered 154 lectures and travelled 1,316 miles.

The following table shows the number of districts, factories and patrons in each syndicate and the pounds of milk received daily at the time of my visit.

Counties.	Parishes.	Factories.	Patrons.	Lbs. Milk.
2	10	28	907	75,210
2	9	24	988	105,458
2	16	24	1,449	136,940
6	35	76	3,304	317,608

I did this work at the request of the inspectors of these syndicates. The programme which was carried out each day was as follows:—

Every morning I received the milk at the factory myself, making a close inspection of the can and milk of every patron, and taking samples of all suspected milk for further examination. After the reception of the milk I made with the inspector a thorough inspection of the factory and of the butter and cheese found in it. I then proceeded to deliver a lecture of an hour on 'The Care of Milk and Milk Cans' and another of half an hour on 'Hog Raising for Bacon' and 'The Care of Milch Cows.'

Before leaving, I suggested to the maker any improvements I thought necessary from my inspection of his factory and goods.

In the afternoon and evening the same programme was carried out with the exception of receiving the milk, making three factories visited, and six lectures delivered each day to the patrons and their families who were invited to attend.

At the end of the inspection of each syndicate, I had a special meeting on the evening of the last day to get together the proprietors of the factories and all the cheese and butter makers.

At these special meetings, addresses were given by the general inspectors of the syndicates and myself, touching the important points we observed, relating to the defects found in the cheese and butter and also in the factories.

The following is a summary of the points discussed:—

1. Butter.—Unsalted butter should never be made unless it be of the very best quality.

2. It is a mistake to deliberately incorporate too much moisture in butter so as to get more weight.

3. Cheese.—Green cheese should never be sold so as to secure more weight.

4. Soft and open cheese should never be deliberately made so as to get more yield.

5. Payment for milk for cheesemaking should be done on the basis of its fat content, as it is for buttermaking.

6. Cold Storage.—No cool or cold room should contain any other substance than dairy products.

7. Humidity.—There is often too much of it in factories.

8. Milk.—Bad milk should never be received in a factory on account of the fact that if it is refused, it would be received by the neighbouring factory.

9. At many factories it is delivered too late in the morning.

10. The maker should always receive the milk himself in order that he may know its quality.

11. Makers should never keep part of the money due to the patrons bringing bad milk to the factory, instead of refusing such milk.

12. Makers should have full control in regard to rejecting milk at the receiving stand and during its manufacture and should not allow any interference on the part of the factory owners about it.

13. Makers who use unfair methods to get milk from other makers' districts should never be engaged.

14. Makers should be able to give patrons the very best advice in regard to the proper care of milk.

15. Milk two days old should not, as a rule, be accepted in factories during the hot days of summer, except on Mondays.

16. Packing.—We should never find badly packed or boxed dairy products in any cheese or butter factory.

17. Pasteurization.—All poor milk should be pasteurized at the factory.

18. Whey would be of much better quality for animal feeding and would leave the cans which have contained it in much better condition if pasteurized.

19. The use of tobacco should be forbidden in all factories.

20. Uncleanliness.—It should never be found outside nor inside the factories, nor in the care of utensils, nor on the person of the makers in the factories.

21. Weighing.—Interference with the balance so as to get false weights of milk, in order to show a higher percentage of yield, or changing the figures when making out the patrons' accounts, is to be condemned very strongly.

22. Whey.—Never deliver whey to the patrons in close proximity to the weighing can during the reception of whole milk, as it is apt to be contaminated by the odour of the whey.

I beg to say in conclusion, that most of the weak points meutioned above as having been found out in many factories and amongst the makers and patrons, would soon disappear, especially the poor quality of the milk received from the patrons, if we could close up one-third of the now existing factories which have no good reason for existence.

In fact, if we look at the figures given as the summing up of the number of factories visited and the number of pounds of milk received in each of them, we find an average of 4,179 pounds per factory. From the knowledge I have of the districts visited and of the inspected factories, I am sure that it would be possible to reduce the number of those by one-third, so as to have about 6,228 pounds of milk, and much better milk at that, as an average per factory. This becoming a fact, makers could refuse all bad milk without having the fear of seeing the patron carrying his refused milk to the nearby factory.

As most of those too numerous factories are unsanitary and poorly equipped, it seems that it would be possible to have them closed under the enforcement of the laws and regulations of the Provincial Bureau of Hygiene.

CONCLUSION.

I will close this report with the following remarks concerning especially my work as lecturer. I have been handicapped this year in doing that work, for three reasons. The first is that in May and October, 1908, we had to stop almost all work outside the office on account of the election campaigns that took place during those two months, one for the Quebec Legislature and the other for the House of Commons. Then, as already mentioned, I suffered in January and February, 1909, from the consequences of an accident which prevented me from doing much travelling during those two months. It is for those reasons that I did less work and had to do it under more pressing circumstances, for lack of time.

Another reason which has made my work more difficult is the fact that owing to special requests, I have been obliged to lecture on subjects which I have not generally treated in my previous experience as a dairy lecturer. This can be readily seen by a glance at the following list of the subjects of my lectures this year:—

Agriculture as a Career for Our Young Men.
Anguillulæ (Eel-worms).
Care of Milk.
Cow-Testing..
Domestic Science.
Duties of Factory Owners and Butter and Cheese Makers.
Hand Separators.
Hog-Raising for Bacon.
Horticulture and Fruit Growing.
Plantation of a Family Orchard in Eastern Quebec.
Rotation and Selection.
Rural Economy.
The Forest and the Farmer
Water in Connection with Dairying.

Hoping that this report will prove satisfactory, inasmuch as it shows that, notwithstanding adverse circumstances, I have done my best to advance our work for the public welfare.

I have the honour to be, sir,
Your obedient servant,

J. C. CHAPAIS,
Assistant Dairy Commissioner.

REPORT

OF THE

DAIRY AND COLD STORAGE COMMISSIONER

FOR THE

FISCAL YEAR ENDING MARCH 31

1909

PART III.—EXTENSION OF MARKETS DIVISION.

TABLE OF CONTENTS.

Cargo Inspection—Reports of Inspectors in Great Britain—Butter Transportation—Export Butter Trade—Export Cheese Trade—Export Apple Trade.

PART III.—EXTENSION OF MARKETS DIVISION.

OTTAWA, March 31, 1909.

J. A. RUDDICK, Esq.,
Dairy and Cold Storage Commissioner,
Ottawa.

SIR,—I beg to submit a report of the work done by the Extension of Markets Division of the Dairy and Cold Storage Branch for the year ending March 31, 1909.

As is now generally known, this division has assigned to it the supervision of the work that the branch is doing for the improvement of the transportation facilities for the export trade in food products. To this end a system of inspection has been established to ensure as far as possible that perishable produce shall be carried at proper temperatures, that it shall be carefully handled at all times, and that delays in transit may be reduced to a minimum. This division also furnishes Canadian exporters with information relating to outside markets and brings foreign buyers into direct communication with shippers on this side.

CARGO INSPECTION.

INSPECTORS IN CANADA.

During the season from May to November, the following inspectors were employed:—

Six cargo inspectors at Montreal, who watched the handling of perishable freight as it was unloaded from the cars and loaded into the steamships, tested the temperatures of the butter before it was placed in the cold storage chambers on the ships, and placed thermographs in the different chambers and holds.

Three iced car inspectors at Montreal who reported the condition of the refrigerator cars which arrived at the railway terminals with butter, took temperatures of the butter and saw that it was carefully handled and quickly distributed.

Three travelling inspectors who looked after the iced cars in the provinces of Ontario and Quebec, tested the temperature of the butter at the various shipping stations and investigated any complaints regarding the service.

During the winter months one of the Montreal cargo inspectors was transferred to the port of Halifax to supervise the loading of apples and to install thermographs in the fruit-carrying steamers.

INSPECTORS IN GREAT BRITAIN.

In Great Britain five cargo inspectors were employed the year round, as usual, to look after the discharge of Canadian perishable products at the ports of Liverpool, Manchester, London, Bristol and Glasgow. These inspectors furnished complete reports respecting the condition in which each cargo was landed, removed the thermograph records and also interviewed, from time to time, the importers of cheese, butter, fruit, &c., on matters affecting the trade in these products.

CHEESE AND BUTTER EX. RIVER BOATS.

During the past two seasons we have paid considerable attention to the condition of cheese and butter ex. river boats at Montreal. In 1908 the deliveries of butter by

canal and river boats amounted to 21,641 packages, and of cheese 346,378 boxes. As a rule transport by water is cooler than by land, but in many of these river craft it is the practice, when a large freight is carried, to stow both butter and cheese in the gangways on each side of the boiler, which as a usual thing is not inclosed, and throws off a great heat. A cargo inspector was detailed to look after the dairy produce brought in by these boats and when he found heated goods due to stowage in proximity to the boiler he at once reported the facts to this office, and the owner of the boat was promptly communicated with.

The following circular was also sent to all owners and captains of river boats engaged in this traffic:—

DEPARTMENT OF AGRICULTURE,

DAIRY AND COLD STORAGE COMMISSIONER'S BRANCH,

EXTENSION OF MARKETS DIVISION,

OTTAWA, June 8, 1908.

To Owners and Captains of River Boats.

'For a number of years this branch of the Department of Agriculture has been working for better transportation facilities for perishable produce, both on the railways in Canada and on the ocean-going steamships engaged in the Canadian trade. During the season of navigation inspectors are employed at Montreal in order that the special iced car services for butter, cheese and fruit may be kept under constant supervision and that the loading of perishable produce in the ships may be watched and rough handling checked. This inspection work has now been carried on under the direction of this branch for several years with excellent results.'

'As you know, a considerable proportion of the cheese, butter and eggs received in Montreal during the season of navigation is carried by river boats. If care is taken to stow these products properly and to load and unload them carefully, there is no reason why they should not be delivered in first class condition. During warm weather, however, our inspectors at Montreal frequently report the arrival of heated butter and cheese ex river boats, caused, in almost every case, by stowage close to the boiler and engine room. (Even cheese is injured if the temperature goes above 60 degrees).'

'Under no circumstances should butter, cheese or eggs be stowed in proximity to the boiler, engine or cooking range. On the contrary, the managers of the companies concerned and the captains of the individual boats engaged in this trade should make it their business to see that on every trip dairy produce and eggs are carried in the coolest parts of the boat.'

'If river boat owners wish to hold this traffic they will be obliged to give more attention to this matter in future than they have in the past. Our progressive factorymen are now convinced of the importance of a cool curing room for cheese and proper cold storage for butter and, as a consequence, the majority of the factories in our best dairy districts are now well equipped in these two respects. The factorymen are now asking the transportation companies to do their part and the inland navigation companies running boats to Montreal will make a serious mistake if they treat this matter lightly and continue to carry perishable freight in a haphazard way without any regard for cool stowage or the condition of the goods on delivery at Montreal.'

'We therefore appeal to you to look into this matter at once and to give the officers of your boat, or boats, precise instructions regarding the proper stowage and the careful handling of butter, cheese and eggs.'

J. A. RUDDICK,
Dairy and Cold Storage Commissioner.

W. W. MOORE,
Chief, Markets Division.

BENEFICIAL RESULTS OF CARGO INSPECTION.

It is now about seven years since this system of cargo inspection at ports in Canada and in Great Britain was inaugurated and in that time very considerable improvement has been brought about in the method of handling perishable freight, both in loading into the steamers and discharging therefrom. The presence of an inspector, who is constantly on the look-out to detect improper handling, has gradually effected a very considerable reform not only as regards the appliances used by the stevedores, but also as regards the actual handling of the packages by the men themselves. Cheese, for instance, are handled much more carefully than under the old conditions, and even with the much weaker box now in use it is unusual to see more than 10 per cent of breakage among boxes when unloaded at ports in Great Britain. This applies to shipments from Montreal only, as during the winter season, when Canadian cheese is shipped via the ports of St. John and Portland, the breakage is greatly increased, averaging from 25 to 45 per cent, including the boxes that are coopered by the steamship companies. At Portland, in particular, where cargo inspectors have never been employed, cheese, apples and other perishable goods are handled much more roughly than they are at the port of Montreal.

The presence of government cargo inspectors on the docks has been of especial benefit to fruit shippers, this being recognized not only by Canadian shippers but by United States shippers as well. Last season a member of one of the large fruit exporting firms located in Lockport, N.Y., paid a visit to the port of Montreal and after looking into the facilities there he stated that, in view of the system of cargo inspection in vogue and the fact that, through the placing of thermographs in the chambers and holds with the fruit, it was possible to obtain a record of the temperature throughout the voyage, their firm would in future route their export shipments via Montreal although the haul would be considerably longer than to their nearest United States port.

Last season the steamship facilities for the transportation of butter and cheese from the port of Montreal were exceedingly good. In September, I received a report from our London inspector to the effect that certain lots of cheese carried in No. 5 hold of the ss. *Cairnrona* had shown signs of heat when unloaded and I at once called the attention of the Montreal agents to this complaint, suggesting that the bulkhead which separates this hold from the engine room should be insulated. The Robert Reford Company, the agents in question, at once replied that they would look into the matter as soon as the steamer arrived and make such provision as would prevent further complaint of this nature. Later on our inspector reported that this bulkhead had been insulated with satisfactory results. In closing this reference to the improvement in transportation facilities I cannot do better than to quote a paragraph from a letter received by this office from Messrs. Frank R. Hamilton & Company, Liverpool, dated January 19, 1909, which reads as follows:—

'On the whole the transportation conditions to-day are tremendously ahead of what they were some years ago and in consequence better results are obtained when the goods are sold on the British markets.'

REPORTS OF CARGO INSPECTORS IN GREAT BRITAIN.

Following are the annual reports of the cargo inspectors employed under the direction of the Dairy and Cold Storage Commissioner's Branch at Liverpool, London, Bristol and Glasgow.

Report of Chief Cargo Inspector for Great Britain.

(Mr. A. W. Grindley.)

Liverpool, January 20, 1909.

I submit herewith my report as chief cargo inspector for Great Britain for the season of 1908.

The work of the cargo inspectors stationed at the ports of Liverpool, London, Bristol and Glasgow has been carried on in a most satisfactory manner. All Canadian perishable food products have been carefully watched, and detailed reports have been made on the printed forms furnished by the Department of Agriculture and regularly forwarded to you.

REPUTATION OF CANADIAN APPLES, SEASON 1908-9.

The cargo inspectors have reported on this season's pack; their reports, with numerous letters received from leading associations and members of the fruit trade in Great Britain, furnish a complete and reliable report on the reputation of Canadian apples, season 1908-9.

CHEESE.

There have been practically no complaints regarding heated cheese, but very numerous complaints regarding the great amount of shrinkage in weights this season, some receivers almost going as far as to charge that false weights have been marked on the boxes. No doubt the heavy shrinkage is largely due to cheese being shipped forward in too new a condition.

There have been a number of complaints of cheese being filled with old or inferior curd, thereby spoiling the sale as well as hurting the reputation of Canadian cheese.

There is still a large percentage of cheese boxes broken, principally among cheese from the province of Quebec. There is very little breakage among boxes from the best districts in Ontario, and Prince Edward Island boxes are also well made. The best carrying box is the sewn type.

THE POULTRY TRADE.

Canada's poultry trade is now practically confined to shipping turkeys at Christmas time. No doubt the increase in the home demand accounts for the falling off in supplies sent to Great Britain, but I am sorry to have to report that the quality has also fallen off and that this season Canadian turkeys were shipped forward in the same slip-shod manner as was found ten or twelve years ago, birds in full feather, and all weights and grades being packed together. Four and five years ago shipments of turkeys gave better satisfaction than they do to-day.

BUTTER AND MARGARINE ACT.

'The Butter and Margarine Act' came into force the first day of 1908, and after twelve months' experience the general opinion is that some improvements have been made in the butter trade, particularly as regards such frauds as milk blended butter, &c., where colonial butters carrying a low percentage of water were worked over and the percentage of water raised, not only to the limit of 16 per cent, but as high as 20 and 25 per cent.

Canadian butter shippers will be well advised to keep the percentage of water well below the maximum and also to be very careful regarding the use of preserva-

tives, for although the British government have no standard fixed for quantity of preservatives in various foods, the local authorities and magistrates have convicted and fined many under section 3 and 6 of 'Sale of Food and Drugs Act, 1875.'

Attached please find annual reports from:—

Mr. Wm. Carter, Cargo Inspector for Ports of Liverpool and Manchester.
Mr. Thos. E. Davis, Cargo Inspector for Port of London.
Mr. Jas. A. Findlay, Cargo Inspector for Port of Glasgow.
Captain H. E. Shallis, Cargo Inspector for Port of Bristol.

To each of the above reports you will find attached letters from leading merchants in the fruit and provision trades, which are valuable reports in themselves. I take this opportunity of thanking the members of the Fruit and provision trades in Great Britain, and also the officials belonging to the different shipping companies in the Canadian service, for the courtesy extended to the representatives in Great Britain of the Canadian Department of Agriculture.

Report of Liverpool and Manchester Cargo Inspector.

(Mr. W. Carter.)

Liverpool, January 18, 1909.

I beg to submit the following report for the year ending December 31, 1908.

Shipments of Canadian agricultural produce have been very light to this port compared with other seasons, more particularly in butter and apples. I am pleased to note two practically new commodities, which are both of interest to the Department of Agriculture, arriving from Canada, viz., a lot of cases of frozen meats (livers, tongues, &c.), and a few lots of Canadian globe onions.

Personally I believe there are great possibilities for both these articles in this country. The United States does an enormous trade with this country in that class of meats, while the onions realized very good prices.

The following is a detailed account of the condition, &c., of the various food stuffs in which the Department is interested.

CHEESE.

With the exception of two or three shipments of cheese that arrived early in September, there has been very little cause for complaint *re* heated cheese during the past summer. The cheese from these steamers arriving early in September were badly heated, but this, I believe, was caused through the vessels being delayed in the St. Lawrence during very warm weather by the smoke from forest fires.

I am sorry to say there is very little improvement in the condition of the boxes. There is still a large percentage of boxes landing here more or less broken, and this is due in most cases to the poor quality of the box. Many of the boxes are made of poor, brittle wood, and it takes very little to break them. I have seen very few of the patent stitched boxes this season. These invariably land in good order, and are almost an ideal box for packing cheese. There is a slight improvement in the branding of cheese, there being fewer boxes arriving with the brand badly blurred. I am still of the opinion that all boxes should have the factory mark branded on them.

BUTTER.

There was very little butter arrived here last season. All that came was in good order. The boxes were sound and I did not see any cases of mould. More than half of them had no canvas covers, and this is a great mistake, for all butter should be soaked. Butter was carried at satisfactory temperatures and some splendid thermograph records were taken from instruments placed with it. The butter was cleared from the quay in good time, except in the case of one or two lots.

EGGS.

Very few eggs arrived here during last season, but all landed in good order and condition.

BACON.

Shipments of bacon were fully up to the average, and all landed here in satisfactory condition.

APPLES.

There has been a tremendous falling off in the shipments of Canadian (Ontario) apples, but Nova Scotians were up to the average. With the exception of a few of the earliest shipments that were badly heated, apples have landed here in good condition. The damage done to the early shipments was caused by the vessels being delayed through smoke from the forest fires. With regard to the quality there has been a decided improvement on last season, particularly in 'Canadians.' These have been more honestly packed and branded, and I have heard very few complaints *re* overgrading of apples.

Except for the early arrivals above-mentioned, apples have been very free from spot this season, and I think we are having less spotted apples every season, for there has been a steady improvement in this respect for the last few years.

There has been little cause for complaint *re* poor or frail barrels, and I think shippers fully realize the advantage of a good, stout barrel over a cheap, common one. The one greatly helps the apples to land here sound and tight, the other tends to land them slack or worse.

With regard to Nova Scotian apples, there has been a good average quantity landed here, and they have realized excellent prices. They have been in excellent order and condition, being sound and very clean, but the bulk of them have been small, particularly the No. 2's. There is a general opinion among Liverpool fruit buyers that Scotian packers do not pack enough No. 3's in comparison with their No. 1's and No. 2's. Most varieties of Scotian apples are slightly smaller than Canadians and buyers here say that packers should not call their *best* apples No. 1's if they are only No. 2 size.

Both Canadian and Nova Scotian apples have been very free from frost so far this season. I have only seen one or two lots that were touched and these only slightly.

There has been but a slight increase in the arrivals of box apples, and these did not do very well. They were for the most part badly packed and were only of fair quality. In some cases the top layer of apples was properly packed and the rest simply poured into the box, and very few of them were papered. Our market can do with any quantity of good box apples, but they must be of the best quality, papered, and properly packed in a good case of uniform size.

COLD STORAGE OF APPLES.

Re apples coming in refrigerators, opinions differ greatly among Liverpool buyers, many of them say that the early tender varieties should be carried in cold storage, while others say that cooled air is best. Many buyers say that tender apples that have been carried in a refrigerator never stand long after being taken out, more particularly if the weather be warm. My own personal opinion is that apples carry best at a temperature of 38 to 40 degrees.

POULTRY.

Practically all the poultry that arrived here were the usual Christmas consignments, and these were in good condition, although many of the cases were rather frail.

STEAMSHIP COMPANIES AND OFFICIALS.

All the steamship companies are doing their best to further the interests of Canadian shippers of agricultural produce in every way. The Manchester Liners, Ltd., commenced an improved weekly service from Montreal in September last practically for the apple trade, and, as you are doubtless aware, the White Star line are placing two new, fast, up-to-date steamers on the Montreal service in the coming spring. I think before very long we shall have nothing but first-class steamers, fitted with all modern appliances for carrying cargoes in the best possible manner, running between here and Montreal.

I here wish to state that I have received every courtesy and assistance from all dock officials of the various shipping companies.

Attached please find letters from Liverpool and Manchester importers.

Copy of letter from Bamford Bros., Liverpool, dated January 13, 1909.

'We are in receipt of your inquiry of the 7th instant, *re* the condition of the Canadian cheese which we have received during the past season as compared with previous seasons. We are pleased to say that during the past season we have received very few cheese in a heated condition. We also find that the boxes are landed here in a better condition than what they were a few years ago, the only exception to this being the cheese from the Quebec section. The boxes of these goods as a rule are more broken than cheese consigned from further west.'

Copy of letter from Co-operative Wholesale Society, Limited, Manchester, dated January 8, 1909.

'For some years we have with pleasure found a gradual improvement in the condition of cheese on arrival in Liverpool, which can, I take it, be ascribed to the improved means of transport, both rail and steamer service. We have practically had no cause for complaint, especially during the last two or three years.'

'With respect to the manufacture of cheese, we are of opinion that if less moisture was left in, much trouble would be obviated and loss in weight, a very important item; our losses through shrinkage or loss through exudation of moisture has at times been considerable.'

Copy of letter from George Little, Limited, Manchester, dated January 20, 1909.

'Replying to your favour of the 7th we are pleased to say that very few cheese, if any, arrived in a heated condition during the past season, and as regards the percentage of ten years ago, we are unable to give you any exact data on this question. We have not carefully retained statistics bearing on this point, but we have no hesitation in saying that not more than 1 per cent of the cheese exported to us have arrived in what may be termed a heated condition.'

'With regard to any suggested improvements, we do not know that the style of package of Canadian cheese can be improved. We have a fancy for, and our customers seem to like them, the larger weights of cheese running say to eighty pounds. We had some this year over, that figured round 100 to 104 pounds per cheese, and needless to say they look very imposing and command a good price. We have considerable difficulty in getting what is termed 'brickred cheese' suitable for the Midlands and Leicester districts. The factories seem indisposed to make cheese of this colour.'

'We formerly did a large trade in Canadian eggs, but this branch of the trade seems to have dropped out. We get no offers whatever, and the trade seems to be in too few hands.'

Copy of letter from J. J. Lonsdale & Company, Limited, Liverpool, dated January 11, 1909.

'In reply to your circular, it is impossible for us to say how much per cent the condition of Canadian cheese has improved, but this improvement is very consider-

able and we have no complaint to make on that score, but we regret to say that the weights of cheese have been most unsatisfactory this season; not only the average loss, which has much exceeded any year in our experience, but also the box weights, or weight marked on the box, which we have found, not in one case but in a great many cases, much in excess, frequently by ten pounds, of the actual weight of the cheese. This is a very serious matter and we hope something will be done to put a stop to it or it will do a very serious injury to the Canadian cheese trade.

'We have also found some lots of cheese 'filled' i.e., the centre filled with curd and stuff. (Stuffed cheese shipped early in season, W.W.M.) We refer you to James Alexander, Montreal, our agent, for further particulars.'

Copy of letter from Mark Revill, Liverpool, dated January 19, 1909.

'Re the packing of 'Canadian' and Nova Scotian apples.

'I think this year has been an improvement on last, but I must say that the proportion of No. 2 fruit packed is still too small. In my opinion on an average season there should only be about one half packed as No. 1's, but my experience is that fully two-thirds are made No. 1's; this means a quantity of No. 2 fruit packed in the centre of the barrel. I always maintain no packer loses by keeping the fruit well up to the standard.'

Copy of letter from C. Townsend, Liverpool, dated January 19, 1909.

'Respecting the packing and grading of 'Canadian' and Nova Scotian apples. I am pleased to report that I have found a distinct improvement this season as compared with last. This branch of my business has consequently been more satisfactory both to myself and to my customers, from whom I have had fewer complaints than hitherto.'

Copy of letter from J. Johnston, Liverpool, dated January 19, 1909.

'Respecting the packing and grading of 'Canadian' and Nova Scotian apples, there has certainly been a marked improvement this season as compared with last, especially in Canadians, and I may state that I have had fewer complaints.

'There is one thing I may suggest with regard to Nova Scotians; they are a little small in the centre of the barrel.'

Copy of letter from Alfred Graham, Liverpool, dated January 16, 1909.

'There has been a great improvement in the grading of Canadian apples this season as compared with last season. Also Scotias show a greater percentage of packers who are reliable in their grading, and the use of flat hoops instead of round by some packers gives the barrels a more attractive appearance on the market.

'Maine apples never were worse graded than this season, as many of them after the first or second tier is displaced are filled in with apples both inferior as to size and quality.'

Copy of letter from Glover, Hill & Co., Liverpool, dated January 19, 1909.

'In answer to your inquiry respecting the packing of "Canadian" and Nova Scotian apples this season as compared with previous years.

'We should say that in the Canadians we have not found much improvement. There are still some packers who draw the lines very close as to what constitutes a No. 1 and a No. 2.

'Scotians, we are pleased to note, have shown a great improvement in their No. 1's, no doubt due to the crop being of a larger size, yet there are one or two packers who mix them, also top their goods.'

'The No. 2's are still a long way behind the standard they should be. A fact that goes to prove this is the small percentage of No. 3's which they take out of them.'

Copy of letter from Bellis & Meek, Liverpool, dated January 20, 1909.

'In response to your inquiry, we have pleasure in stating that in our opinion Canadian and Nova Scotian apples this season have shown a decided improvement

The landing of Jacques Cartier at Quebec, modelled in Butter, life size, Canadian Pavillion, Franco-British Exhibition, 1908.

in grading and packing as compared with the previous season. The No. 1's have been more reliable, and consequently on opening a barrel of this grade we could nearly always depend on getting No. 1 fruit, and therefore we have been able to buy with more confidence, whilst last year one was never surprised to find second or even third grade fruit branded as No. 1.

'With reference to Nova Scotian apples, of course the size generally has been small, but undoubtedly also the grading has been better. We consider, however, that a bigger proportion of the apples should have been marked No. 2.

'This season, we are glad to say, we have had very few complaints from our town and country customers, whilst last year we had almost daily complaints and demands for allowances, and this in spite of sending reliable men to the dock to report on the apples before we bought them.'

Copy of letter from Frank Hamilton & Co., Liverpool, dated January 19, 1909.

'In reply to your letter of the 7th instant, regarding our views on the work of the Canadian Fruit Marks Act, also on improvements instituted in the transportation and shipment of fruit from Canada during the last ten years, we have pleasure in placing at your disposal our experience on both these questions.

'Taking transportation first, there can be no question whatever but that improvements in this direction have been greatly to the advantage of all shippers of perishable goods.

'As you are no doubt aware, our firm has been for over twenty years personally represented in the port of Montreal during the shipping season, and we are therefore in a position to appreciate to the full the efforts your government have made to minimize the losses to shippers, caused by neglect and delay at the ports of shipment. It is not so very many years ago that a walk along the docks of Montreal would disclose thousands of barrels of apples piled in the open and exposed to the effects of the weather, both hot and cold, and with only the protection of a tarpaulin, it that, and the bottom tiers often covered with mud or coal dust.

'The steamers in those days only carried some 5,000 to 10,000 barrels of apples apiece, and the shutting out of goods was the rule rather than the exception. It was no uncommon thing to have a through bill of lading in our Liverpool office a month before the goods put in an appearance. Such a state of things is now impossible, Montreal being equipped with some splendid cargo sheds which will compare favourably with those of any port in the world, and as the railway tracks run alongside, the handling of goods is reduced to a minimum. In conjunction with those improvements, the class of steamer using the port is also improved, and it is seldom that perishable goods are shut out.

'Most steamers are now equipped with refrigerating plant, but so far as apples are concerned this is not taken advantage of so much as it should be, owing to the high rate of additional freight demanded, viz., 1s. per barrel extra for cool air, or 1s. 6d. per barrel extra for cold storage, say 2s. 6d. to 2s. 9d. per barrel, makes the total too high for the value of the goods. The consequence is that, except in cases of very soft summer apples, the shippers prefer to risk the ordinary storage.

'The recent concession of your government to fruit shippers of free icing of cars during transit has had a beneficial effect on the condition of the fruit arriving at port of export.

'On the whole, the transportation conditions to-day are tremendously ahead of what they were some years ago, and in consequence better results are obtained when the goods are sold on the British markets.'

Copy of letter from J. C. Houghton & Co., Liverpool, dated January 9, 1909.

'We duly received your favour of the 7th instant, and we need hardly say that any information we can give you on the points you raise is heartily at your service.

'As regards the grading and packing of Canadian apples, we regret that the irregularities so noticeable in previous seasons were again present in this one. We cannot but think that the government inspection at shipping points has had some good effect, but the fact remains that we have still the anomaly of seeing a No. 2 grade of one shipper bringing as much or nearly as much as a No. 1 of another. It does not seem logical or right that prices of one grade of apples should have a range of several shillings, though we confess we do not know how shippers are to be forced to observe a more uniform standard of quality, whether it be for No. 1 or No. 2 grades.

'As regards condition, it is only too well known that many of the earlier shipments of Canadian apples this season gave *disastrous* results, mainly in consequence of the wasty state in which they landed here. We believe that intensely hot weather just before and about the time of shipment was largely responsible for this, but we also understand that previous atmospheric conditions were such as to cause apples to mature earlier than usual, and to leave them with less carrying and keeping power.'

'As regards transportation improvements on the other side, we are not in a position to speak, but it does not appear to us that of late years there has been any marked general improvement in the condition in which Canadian apples are delivered in this country.'

REPORT OF THE LONDON CARGO INSPECTOR.

(*Mr. Thomas E. Davis.*)

LONDON, January 16, 1909

I beg to submit herewith report on the local work of the branch for the year ending January 15, 1909.

NEW STEAMERS IN THE LONDON SERVICE.

During the year under review several additions have been made in respect to the London service.

The Thomson Line.

The s.s. *Cairnrona* (twin screw) is the latest addition to the Thomson line. This steamer has facilities for the carriage of cheese, butter, bacon and eggs, and has a capacity of 81,000 cubic feet for cooled air, and 20,000 cubic feet of refrigerator space.

In connection with the ordinary stowage of this vessel, I had occasion in July last to report on the condition of certain cheese found to be heated, the result of being stowed close to a warm bulkhead adjoining the engine room. Following representations from Ottawa, the bulkhead in question was insulated with satisfactory results.

At the commencement of the Montreal season the *Latona* of this line, with freight for London, foundered through a collision during foggy weather.

Allan Line.

The ss. *Corinthian*, with a total cold storage capacity of 10,162 cubic feet, and the s.s. *Sicilian* with 14,700 cubic feet of refrigerating space are other additions to the London service

The Canadian Pacific Railway Line.

These steamers berth at Millwall docks and lighter perishables to the Surrey commercial docks for warehousing in cool air.

FURNESS, WITHY LINE—NOVA SCOTIA AND LONDON.

The steamships *Tabasco* and *Almeriana* are extra fruit carrying vessels, being well ventilated. In the case of the *Tabasco*, she is fitted with machinery for forcing cool air through holds, with similar means for the extraction of hot air.

The facilities for landing, warehousing to marks, and forwarding apples and cheese, continue to be all that can be desired.

THERMOGRAPHS.

The confidence in the accuracy of these instruments is not misplaced. During the Montreal season I repeatedly checked them with a registered Kew Observatory thermometer, and in every instance the readings have been more or less identical.

INQUIRIES.

During the year my duties involved the supervision of produce ex. steamers, taking temperatures, and noting the condition of goods and packages prior to delivery from wharf, watching the loading and unloading at depots and subsequently following the goods to the receivers as far as practicable and within a reasonable area. In this respect I made about 1,300 calls on matters dealing directly with the products, as set out in my separate reports on each inward steamship. I also made a special point of keeping in touch with the department's consignments for the Franco-British, Horticultural, Crystal Palace and Grocers' Exhibitions.

HEATED CHEESE.

From examination of cheese made during the landing from steamers, the improvements made continue to be manifested by good results. As in the case of the *Cairnrona* already mentioned, the adverse conditions were speedily remedied.

MIXED CURD.

Three instances of mixed cheese have been brought to my notice during the past season, particulars of which were duly reported.

BUTTER.

There has been a decided falling off of butter shipments during the Montreal season, and a noticeable absence of box wrappers. There were no complaints in respect to mould, the temperature during ocean transit and dock storage being very satisfactory.

'CANADIAN' APPLES.

The few that have come forward have invariably gone to the provinces, but those retailed here have been of good quality, well packed, and have given general satisfaction.

NOVA SCOTIAN APPLES.

From personal observation at the docks and my subsequent visits to warehouses, conjoined with the letters before me from leading importers, I have no doubt whatever that the apples of this season have surpassed in quality those of last fall.

Geo. Munro, Ltd., writes:—

'We receive a good many apples from Nova Scotia. The N.S. have certainly been packed much better than hitherto, and the crop having ripened much better than usual, we found them on the whole above the average sample.'

The foregoing opinion is voiced by all the leading London merchants whose letters are attached.

COLD STORAGE FOR EARLY APPLES.

The merchants are somewhat divided in respect to the success of this venture. Garcia Jacobs & Co., writing from a financial point, say:—

'We do not think early apples are likely to bring satisfactory prices when sent in refrigeration, as in the month of August, when Canadian apples are ready, there is a large quantity of continental apples sent from the south of Europe.

'The only good result that we have ever known for early apples under refrigeration has been when the English and continental season was backward, and then the early apples from the eastern states of America met a good market.'

J. O. Sims says:—

'Pears and early apples in cool air would be all right if the market here were *free from home and continental grown fruit.*'

J. B. Thomas writes:—

'The first arrivals of Gravensteins were very unsatisfactory, the apples having been picked rather green and shipped in such hot weather. The condition of these Gravensteins would have been much improved had they been shipped in cool chambers, as all apples sent forward in warm autumn weather should be.

'As to pears, the only successful method of handling these is to cold store them immediately they are picked, and repack for shipment in refrigeration as soon as they are cooled down, a method which would also apply to peaches, so long as they were not subject to a temperature of less than 38 degrees.'

LONDON APPLE MARKET.

During November last much indignation arose amongst the London buyers as a result of the action of certain of the Covent Garden brokers who commenced the practice of deliberately erasing from sample barrels, brought up for auction, the names of the growers. However, as I have already reported the matter, it is only fair to add that my representations to the parties concerned have produced the desired effect, and this objectionable practice has now been abandoned.

For many seasons past the prices recorded on this market have fluctuated very considerably owing to alternate over-feeding and starving in the matter of supplies. When apples are sent forward in continuous large quantities for some weeks, the auction brokers, possibly somewhat enervated by continuous pressure from buyers, show a disposition to clear their stock at all hazards, and an inevitable slump ensues. This naturally has a reflex action on the wholesale market and drastic measures are then necessary in order to stiffen prices. These take the form of practically cutting the supplies down to a minimum, as occurred during the recent Christmas season, when prices rose very quickly to an almost prohibitive figure, with the result that the public turn their attention to other and cheaper classes of fruit, so that it is a long time before the market is again able to absorb large quantities. Clearly, if the public will not pay the enhanced price demanded by the retailer, the latter cannot afford to risk his money in the auction sales.

Under the conditions above outlined, it will readily be seen that the greatest sufferer is not so much the commission man on the other side, as the farmer who has grown and shipped the apples, anticipating a fair return on his outlay.

Making due allowance for the obvious necessity of sending certain soft varieties of fruit to market as rapidly as possible, I am of the opinion that greater co-operation is desirable between shippers and brokers, who appear to me to have a mutual interest in maintaining a steady market. If developed on the right lines, such co-operation would exercise a proper control on supply and demand and even when, for various reasons, shipment in large volume is unavoidable, steps could be taken to find fresh outlets at the outlying ports and provincial towns easily served from London, thus opening up a wider field for distribution. When fine eating apples of top grade are knocked down at anything between 9s. and 12s. 6d. per barrel, it is obvious that a needless sacrifice is being made, and I should recommend that reliable agents in provincial towns and ports within reach of London be given an opportunity of absorbing the excess

fruit which frequently, under present conditions, only serves to glut the London market.

Acknowledgments.—I wish to record my appreciation for the courtesy always shown me by Mr. W. L. Griffith, of the High Commissioner's Office, and the dock and shipping companies who have been ever ready to assist me with any information dealing with the work of this department.

Please find attached original letters from merchants referred to.

Copy of letter from The Co-operative Wholesale Society, London, dated January 7, 1909.

'In reply to your letter and inquiry sent on behalf of the Dairy and Cold Storage Commissioner at Ottawa, dated January 2nd, permit me to say that for the past few years we have with pleasure noted a gradual improvement in the condition on arrival at both Liverpool and London of Canadian cheese, which I do not doubt can be safely ascribed to the improved means of transit both by rail and boat. We have practically had no cause for complaint of the cheese being heated, more particularly during the last two or three years. Going back prior to this period, say ten years ago or before, we had frequent cause for complaint of heat in the cheese. This leads me to say, answering your second paragraph, that we think the improvements during the last decade in the matter of ocean carriage have brought about very good results.'

Copy of letter from Lovell & Christmas, Limited, London, dated January 4, 1909.

'In reply to yours of the 2nd instant, speaking from our personal experience the percentage of heated cheese throughout the past season has been practically nil. During the warm weather we brought all our cheese in cool storage, at a small additional freight, and found this precaution was of great advantage because, the cheese arrived here in perfect condition, and the saving in the weight (shrinkage) almost, if not quite, covered the extra expense incurred by having the cheese in cool instead of ordinary stowage.

'In our opinion, there has been a vast improvement in the carrying of cheese during the last ten years, and as far as the past season is concerned, we do not think it could well have been improved on. We believe this is the general feeling of the trade here, especially on the part of those who have taken advantage of the cool storage on the vessels.'

Copy of letter from Andrew Clement & Sons, Limited, London, dated January 6, 1909.

'In our opinion Canadian cheese have carried much better the last season or two than ten years ago, better attention having been given not only to the carrying, but also as regards the handling of the boxes at the other side and the discharging of same at this end.'

Copy of letter from Rowson, Hodgson & Company, Limited, London, dated January 7, 1909.

'*Heated Cheese.*—Our experience is that only a limited quantity of the imports from Canada this season have shown any external or internal signs of heat. We would not think 5 per cent of the entire quantity received into the country, whereas ten years ago probably fully 25 per cent of the goods arriving suffered from the defect referred to.

'Regarding the ocean carriage and landing of butter and cheese, so far as London is concerned there has been a gradual improvement during the last fifteen years, and more especially since the time that the cool air stowage has been adopted on two lines of steamers, viz., the Thomson and the Allan lines.'

Copy of letter from Geo. Monro, Limited, London, dated January 4, 1909.

'We are in receipt of yours of the 2nd instant, and beg to say that we receive a good many apples from Nova Scotia but not much other Canadian stuff direct. The

Nova Scotia apples have certainly been packed much better than hitherto so far as we are concerned, and the crop having ripened much better than usual, we found them on the whole above the average sample. We think it would certainly be advisable to try some of the earlier apples in cool storage, as there is very great risk in such as Gravensteins. If they happen to come during a mild week they scarcely ever arrive in good condition.'

Copy of letter from W. Dennis & Sons, Limited, London, dated January 13, 1909.

'In reply to your letter of the 2nd instant, we beg to state that shipments of 'Canadian' apples to London, so far this season, have been so remarkably small that we really do not feel justified in making any report upon the pack and condition of the season.

'As regards Nova Scotian fruit, we have very great pleasure in stating that, on the whole, the fruit itself has been of a very much better character than for some years past. There has been very little spot noticeable since the earlier arrivals of summer fruit, and, generally speaking, the size of the fruit has been bolder and arrivals have come to hand in fairly good shape.

'With respect to your Mr. Moore's inquiry about shipments of pears and early apples in cold storage, our experience this year has been to the effect that, as regards pears at any rate, cold storage transport in refrigeration is an absolute necessity. We have been in receipt of quite a few from Ontario and, in each case, owing to the ripening of the fruit under the rapid changes of temperature, the stock has arrived here in more or less rotten condition, and what would otherwise have sold at very remunerative figures had to be sacrificed at a very great loss to the shipper. We therefore have no hesitation whatever in recommending all this stock to come forward, as before stated, under refrigeration.'

Report of Glasgow Cargo Inspector.

(Mr. Jas. A. Findlay.)

Glasgow, January 24, 1909.

I have much pleasure in forwarding my annual report for season, 1908. Generally, imports of various Canadian produce to Glasgow show a decrease, due not to any falling off in quality or lack of confidence on the part of importers, but rather to the requirements of Canadians for an increased amount of their own products, and the prevailing dullness in all branches of trade in Glasgow, reducing the purchasing power of the consumers and shortening the demands of the public.

In most quarters satisfaction is expressed with the quality of the various Canadian products imported, and though now and again complaints occur over some consignments arriving out of condition or below the high standard usually shipped, yet, satisfaction exists in all branches at the efforts of the Department of Agriculture of Canada to maintain the highest standard of the Canadian product. I regret being unable to secure any definite percentage of heated cheese arriving this season as compared with ten years ago, but all importers declare pronounced progress exists in this respect in the present freedom from heat traces on cheese consignments.

I have endeavoured to convey in the following general report criticisms and suggestions expressed by consignees, and trust this report may be satisfactory.

CHEESE.

The Canadian cheese trade again shows a shrinkage in imports to Glasgow, the season's returns being over 30,000 boxes short of season 1906-7.

The season opened with a slow demand for Canadians, owing to the quantity of New Zealand produce on the market in the spring and early summer. Following this, the Scotch manufacture was a good average one throughout the season. This,

coupled with the smaller consumption and the high price of Canadians, resulted in a smaller demand from Glasgow for Canadian cheese all season.

QUALITY AND CONDITION.

While the season's imports have been on a small scale, the quality and condition have been most satisfactory, and Canadians mark a distinct advance regarding condition of arrival and uniform excellence in quality throughout the season. Though a few parcels were weak in flavour, the general average shows improvement. The pronounced complaint of last season of makers shipping 'green' cheese was almost entirely absent this season, yet I saw a few parcels showing dangerously immature, and until shippers firmly stop this practice, which results in loss to importers (last season's errors committed by Canadians caused an increased demand for New Zealand cheese, which are rapidly rising in the market estimation here), the demand for Canadians will suffer.

Cheese, notwithstanding the hot weather in Canada and also in Scotland, landed throughout the season in excellent condition and remarkably free from heat.

One pleasant feature of this season is the marked change in opinion by importers when speaking of Canadian cheese. Last year they severely criticised, but this year the majority commend Canadian cheese for quality, and admit that between choice Canadian and Scotch manufacture there is little or no difference in quality. In this connection, I may say that I am credibly informed that choice Canadian are retailed by shop-keepers as 'best Scotch Cheddar.'

CHEESE BOXES.

The condition of the boxes showed improvement in some respects, but the percentage of damaged boxes was far too large, and frequent complaints on this score were made by receivers. Occasionally I have had to point out to the shipping companies the fact that a few individual workmen were handling the boxes roughly from time to time, but I always found them most anxious to impress on their employees the necessity for careful handling. In many cases of extraordinary breakages the cause lies in the irregular boxing of parcels, and I invariably find that a large percentage of broken boxes is due to defects in boxing, such as too large boxes, the sides of which I have seen extending above the cheese from 1 inch to 1½ inch, or else the boxes are too short and perhaps in addition much too wide. Another fault is that of boxing heavy cheese of 90 to 98 pounds weight with slim boxes. There is great room for improvement in the boxes over all, as, while many parcels are landed regularly well boxed and in sound order, yet others as regularly arrive showing from 25 per cent to 40 per cent damaged, and frequently a considerably higher percentage of breakages are apparent.

BUTTER.

Imports of Canadian butter were on a very small scale this year again owing to the fact that the ruling price in Canada was too high to permit of profitable importation. Small as the imports were in 1907, those of 1908 were less.

QUALITY AND CONDITION.

The quality of most of the butter was satisfactory, some indeed being very choice; unfortunately a few parcels showed mould on the parchment and another arrival decided mould on the butter; one or two parcels also arrived out of condition having developed a 'fishy' flavour. Needless to say these defects are undesirable and detrimental to the reputation of Canadian butter. Only about one-third of the shipments were sacked, but packages were landed in good order and exceedingly few cases of broken covers or damaged boxes were apparent. The steamship companies maintained a temperature of around 19 to 22 degrees on an average in refrigerators in transit.

This season, with the exception of a few parcels, the bulk of shipments were lifted the day or second day after landing from refrigerators, about 450 boxes the third day after, 175 the fourth day after and 60 boxes the sixth day after. This is a slight improvement on last season's results.

EGGS.

The imports of eggs were small, being little more than a fourth of last season's totals, but those that came were of good size and condition and from all reports gave complete satisfaction to importers. The shipments were well boxed, landed in good condition and were handled with care.

BACON.

Canadian bacon again shows a slight decrease in imports to Glasgow over last season. The quality has been good and has given satisfaction generally and increased quantities could be taken here. One importer compared the keeping qualities of the Canadian bacon with the U. S. A. product and claimed that the former, in the event of having to be held up on account of unsuitable markets, depreciates in value in a week's time, whereas the latter can be relied on to stand up for two or three weeks without undue sign of depreciation. He is of the opinion that this may be due to the style of cure adopted in Canada as much as to its mildness.

A considerable number of barrels of buttocks and beef, also a few barrels of livers, were imported, a small lot of the latter being condemned by the sanitary inspector here. In view of the rigid inspection of 'boneless meat,' extreme care must be exercised by Canadian packers of this and all meats.

CANNED APPLES.

There is a considerable trade in canned apples to Glasgow, of whose requirements Canada supplies the bulk, but this year, in common with most other imports from Canada, a slight falling off is observable.

I find receivers well satisfied with consignments, and generally speaking the pack seems well handled, there being a very small percentage of blown or defective tins as a rule. This year receivers point out some defects which it might be advisable for canners to rectify, as presently Canadian canned apples, though supplying the bulk of the Glasgow market, only occupy second place in point of quality. A New York firm's product commands from 1s. to 2s. more per case and the general opinion is that Canadians compare unfavourably with this firm's brand. Some objections to Canadian canned apples are:—including defective fruit and including, in same pack and cook, hard and soft varieties, consequently tins open up uneven with hard and soft pieces together. Several such cases have been shown me at various periods, the tins opening up with brownish and clear coloured fruit together. It would be a decided advantage if canning factories would cook, as far as possible, varieties of one hardness and consistency together, and softer varieties separately, and it is felt here that if canners would state on the cans the varieties included in the cook it would enhance the value of the Canadian pack. Some importers state that cans opened flavourless and hard, and one objects to what he considers the undue proportion of juice in Canadian cans, there being generally about one pound out of tins weighing six and three-quarter pounds, whereas in the U. S. A. brand 'Curtis Brothers,' the cans are filled with apple and just sufficient juice to cover the fruit.

CANADIAN APPLES.

The apple season of 1908 has been of much smaller dimensions than 1907 owing to the shortness of the Canadian crop, and at the moment of writing parcels of good pack and condition secure very handsome prices. The season in its results was a somewhat varied one. For the first arrivals of summer fruit ex. refrigerator, which

came to hand in good condition, prices were satisfactory and the quality promised well for a profitable season, but arrivals a few weeks later were landed in most unsatisfactory condition owing to the hot weather prevailing in Canada and through detention to shipping on the passage down the St. Lawrence; consequently the bulk of shipments via ordinary storage from September 23 to October 28 arrived heated, over-ripe and 'wasty,' with pronounced scab and mildew on Greenings, Snow, Holl and Fall Pippins and other tender-skinned apples, and also on other varieties which as a rule are not affected by scab or mildew. As a result apples arriving during this period, with a few exceptions, had to be sold with ruinous results, the bulk of these early shipments being disposed of to the hawker class of vendors, who retailed them through the streets at low prices. It is felt here that packers cannot in many cases have exercised sufficient supervision to keep out of the early pack fruit affected with scab, as large quantities of Greenings and Snows opened up completely covered with scab and mould, and when decay was apparent sold for 1s. 6 d. to 8s. or 9s. per barrel, shipments during this period containing frequently all shakes or slacks, or a very large percentage of such. Fortunately the winter fruit shipped later, arrived in excellent condition and, being of very fine quality, secured very high prices owing to the shortness of supply.

QUALITY OF APPLES.

The pack and grading of apples has on the whole been more in accordance with the Fruit Marks Act than last year's shipments, and certainly marks a decided improvement, though a few packers still require to be severely dealt with, one or two in particular this season persistently over-grading their apples. While the earlier shipments displayed a decided lack of colour, the most pronounced complaint this season has been the lack of keeping quality. This condition has been the means of loss to large holders. There was again a considerable quantity of boxes imported and here also early shipments suffered from heat and landed over-ripe. Boxes are becoming more popular in Glasgow. Several retailers on whom I have called state they prefer to deal exclusively in them in preference to barrels, as, though the cost is greater, the waste is much less, or practically nothing compared to that in barrels. Box fruit, however, is expected to be choice, and in comparison with Californian or British Columbian boxes, there is great room for improvement in the Ontario package, in grade and general style of pack.

NOVA SCOTIAN APPLES.

A noticeable feature this season has been the quantity of Nova Scotian apples imported to Glasgow, and though not so popular in Glasgow as the Ontarian varieties, this year they met with ready acceptance and secured remunerative prices owing to the scarcity of the Ontarian supply. All season the supplies from Nova Scotia have arrived in splendid condition, being clean skinned, of good colour, and generally regular in size, though quite a number of parcels of Baldwins and Greenings have been of poor grade, and the former somewhat lacking in colour. A special feature has been several choice parcels of Kings. In all there have been over 40,000 barrels imported this season from Nova Scotia as compared with scarcely 8,000 last season; these along with importations of western States apples have helped to relieve the scarcity in the market here. One feature which militates against the greater popularity of the Nova Scotian apples is the style of barrel; buyers generally, but especially those in the country districts, prefer the Ontario barrel, and the small Nova Scotian package is looked upon with disfavour. In a year of normal supply from Ontario, Nova Scotian apples would not have had such a good market, as they are considered here to be lacking in flavour and tending to be 'woody' in body.

CANADIAN PACKED AMERICAN APPLES.

This year there has been a considerable quantity of western states apples put up by Canadian packers in the United States and graded according to the Canadian standard, shipped to Glasgow; in most cases the packers have adhered to the standard pretty closely, but one or two have not hesitated to put in their No. 1 grade apples of decidedly lower quality.

Apart from the grade value of the apples, it is felt in some circles here that the style of the brands are in most cases misleading and calculated to give a spurious value to these apples. I have kept you advised of the various styles of branding; and in all cases where it does not clearly state on the barrels 'product of U.S.A.,' certain dealers here consider that barrels lacking this are liable to be sold as Canadian. It is felt that the brand 'American Apples' is not sufficiently distinctive when the packer's name is that of a well-known Canadian packer, followed by the address in Canada and sometimes 'Canada' on the barrel, of which I give two examples, viz.:—

Northern York State Apples,
J. G. Dudley & Son,
S. G. Dudley,
Brighton, Ont., Canada.

or

American Apples,
G. W. Herrington,
Brighton, Ont., Canada.

The large wholesale buyers are perfectly aware, as a rule, that the apples are U.S.A. product, but the smaller buyers, shop-keepers, &c., who purchase from wholesale merchants, are not so enlightened and accept them as Canadian apples, which must indirectly adversely affect Canadian grown apples, and it is felt that in the interest of the Canadian apple trade some clearer style of branding is necessary.

PEARS.

There have been considerable shipments of Canadian pears this season to Glasgow with varying results; these, however, have been on the average satisfactory, as most of the shipments came in cold storage and with certain exceptions landed in fair or very fair condition.

QUALITY AND CONDITION.

The quality of Duchess, Anjou, Winter Nelis and Bartlett, which are the most popular in Glasgow, was very fair and when landed in good condition commanded satisfactory prices. This market could take increased quantities of these varieties of pears from Canada and if well and regularly packed, they will command remunerative prices, but it would be well in future shipments to pack the fruit greener than was done this season, as many consignments came to hand over-ripe and others heated and 'wasty,' the result being forced sales and lower prices. The early arrivals of Bartletts were generally slightly ripe, but many of the later arrivals of Duchess and Anjou came to hand in very fair condition. Towards the end of the Montreal season several shipments of cooking pears (Keiffers) arrived in boxes and barrels. The latter, carried in ordinary storage, were over-ripe and decayed, but the boxes ex refrigerators were generally in very fair order, though some parcels were rather ripe, necessitating a rapid sale and consequent low prices. The Keiffer is considered here a cooking pear only, and even as such is not largely used, as the people do not cook pears to any extent. In some quarters it is thought that the trade in Keiffer pears could be fostered were cooking instructions printed on a slip and packed along with the boxes for a time. I notice some packers of box fruit have adopted a similar method regard-

ing Tolman Sweets. The Keiffer pears should also be shipped greener than they have been this season, as when they arrive ripe brokers require to get them sold quickly to escape decided decay and loss. According to the trade here Canadian pears are not as regular in grade as those from California, which are largely shipped here in cold storage and generally lead the market.

BOXES.

The favourite package is the half case for choice pears, as the fruit encounters less pressure than in the full cases and arrives in better condition.

Copy of letter from Herbertson & Hamilton, Glasgow, dated January 15, 1909.

'We have pleasure in reporting that our shipments of Canadian cheese received the past season show a distinct improvement both in condition and quality compared with previous years, and are a great advance in all respects in comparison with what we were receiving, say ten years ago. The quality of the various factories has been more regular and there has been a conspicuous absence of anything of a distinctly inferior character. The meat, texture, flavour and style all show an improvement, and it is evident the dairy instructors are making their mark on the quality of Canadian cheese. The only complaint we have to make, and it is a somewhat serious one, is of the newness of the cheese when received. Many of our lots seem to have been shipped almost immediately they had been made, so that we had to hold them over here for some time before they were fit for use, which resulted in a serious indrink and consequent loss.

'The boxes of our western shipments have arrived in fair condition but some lots of Quebec make were all broken and knocked about, which in some cases was explained by the boxes being too large for the cheese.

'We have also had some trouble with indistinct marking of weights on the boxes. There are still a few fossilized makers who continue to use lead pencil instead of steneils, and the result is vexation and loss to buyers here, as in such cases the figures are almost illegible and easily lead to mistakes.

'We suggest that it should be compulsory to have the weight clearly stencilled on every box, or failing this, that buyers in the factory districts should insist on one-eighth of a cent per pound of a reduction on cheese not so marked.

'We would again emphasize the advisability of having every cheese legibly dated when made, so that the trickery which has been indulged in by unscrupulous dealers should be effectively put a stop to. We consider this would be very greatly to the advantage of the factorymen, as at present early made cheese are cold stored and shipped as Junes, while July and hot weather cheese have in some cases to our knowledge been shipped out the end of September and represented as September goods. The result of this has been that buyers have had no satisfaction in using the cheese owing to their want of keeping properties, which has had the effect of damaging the reputation of the Canadian product, while the sole cause of the trouble was the untrue description given the cheese. We hope this matter will be firmly dealt with before the start of the new season.'

Copy of letter from James Leggat & Company, Glasgow, dated December 24, 1908.

'In reference to your call *re* quality and condition of Canadian cheese. Generally speaking the cheese have arrived in good condition notwithstanding the hot summer both here and in Canada. We have had little to complain of in regard to heated cheese and nothing at all in comparison with say ten years ago.

'Regarding flavour, there is still room for improvement, though this has also been improved during the past season. The long drives with milk over bad roads in hot weather may account partly for this, also objectionable weeds in the pasture at certain seasons, further, the milk cans are sometimes used for taking back whey to

the farm and afterwards not properly cleaned. Any or all of these will produce a faulty flavour in the cheese.

'Improved quality always commands a larger demand and a better price.'

Copy of letter from Fulton & Weir, Glasgow, dated January 11, 1909.

'We consider that the quality of Canadian cheese has been very much improved these last ten years as regards texture, flavour and colour, and certainly as regards heating there is little or nothing to complain of now, whereas ten years ago it was a constant source of complaint.'

'We consider that the Canadian cheese are coming very near the quality of our Scotch cheese now, and if they were only shipped in a more mature condition, they would be much more marketable when they arrive here. A very large proportion of the Canadian cheese which have arrived these last two or three years have been shipped far too green; indeed one is inclined to believe that they are being shipped as soon as they are made.'

Copy of letter from Andrew Clement & Sons, Ltd., Glasgow, dated January 19, 1909.

'The Canadian dairy produce trade of 1908 has been a disappointment to Scottish importers, because of adverse markets and decreased supplies. It is somewhat disheartening to record another year of diminished trade, and should the shrinkage not be stopped we are afraid Canada will lose her present strong position in cheese, and what was at one time a rapidly improving position in butter. Fortunately the butter and cheese requirements of Scotland show no decline, but only that importers have been forced to fill their wants to a greater extent from other sources of supply.

'At your request we sum up the position as follows:—

'CHEESE.

'*Condition.*—Heated cheese were too few to do any harm worth mentioning, and the present carrying arrangements are about as near perfect as we can reasonably expect.

'*Quality* cannot be said to have shown much improvement, neither has it deteriorated.

'*Appearances* leave still much room for betterment in neater edges to the cheese and particularly in better finished boxes. We notice a gradual deterioration in the style and strength of cheese boxes as compared with past years.

Weights have been more and more unsatisfactory and the shrinkage has caused heavy losses to importers. The practice of shipping too green cheese is doing great injury to the Canadian trade.

'*Supplies.*—Owing to short make and high prices in Canada, Scotch importers find they can get better value in home and New Zealand cheese on which they have no loss in weight, consequently, their requirements for Canadians were smaller than formerly. The enormous increase in New Zealand supplies from January till June makes it unnecessary for importers to buy and carry from the autumn the heavy

'(5) Prohibit the shipment of green cheese or short-weight goods.'

'BUTTER.

Supplies from Canada were not sufficiently large to warrant any special remark.

'*Quality and condition* were practically the same as former seasons, but prices in Canada were relatively too high compared with Irish and continental supplies.

'In conclusion we should like to refer to the great care exercised by the Canadian government and dairy associations over the production and transit of dairy produce, and to assure them that their efforts are appreciated by importers on this side.

'If we may be allowed to offer suggestions to them for the future, they would be that, while not relaxing their present work, they devote increased attention to:—

'(1) Discouraging small factories.

'(2) Making it compulsory to have cool-curing rooms at each factory.

'(3) Raising the status of cheese and butter-makers.

'(4) Developing production by getting farmers to make provision against droughts by laying in supplies of green food, ensilage, &c., and to develop the milking strains of their herds.

'(5) Prohibit the shipment of green cheese or short-weight goods.'

Copy of letter from W. & M. Gilmour, Glasgow, dated January 19, 1909.

'The quantity of Canadian butter coming to our market this season has been exceedingly small, principally for the reason that the prices ruling in Canada were higher than we could pay here. The different lots that we did bring forward showed quality equal in standard to former years' production, and fortunately all lots we imported have been free from mould or spots, either on parchment or butter. This is a very serious thing when it does occur (which unfortunately it does too often), as the loss is ruinous to the importer, and anything that can be done in Canada to remedy this matter should have the earnest consideration of every one interested in the production and packing of butter for our market.

'Our opinion is that the standard of quality of Canadian butter has been improved within the past six or eight years, but there is still further advance to be made in this direction so that we may get absolutely away from anything in the nature of fishy flavour developing when the butter reaches this side.

'The packing of the butter is generally well done, with the exception of a few lots where we find the butter badly finished off on the top, and very often this could be avoided by using only boxes of the right size sufficiently filled to the top to look attractive.

'Another point of special importance is that no boxes intended for shipment to our market should contain more than fifty-six pounds net. Irregular weights should be strictly prohibited, as they only lead to confusion and annoyance to the retailer, who has to be seriously considered in the distribution of the butter. It is our earnest hope that irregular weights will soon be a thing of the past.

'The improvement of the sailings to our port and the better class steamers has had the advantage of landing the butter in better condition; therefore, we have had almost an entire absence of heating in transit.

'In conclusion, if only fresh made butter of strictly 'choicest' quality, pale in colour and very lightly salted, is shipped to Glasgow (as only butter of this class will compete with Danish and Irish creamery, which are largely sold here), we see no reason to prevent a much larger trade in Canadian creamery whenever your production permits of larger export.

Copy of letter from Simons, Jacobs & Company, Glasgow, dated January 20, 1909.

FRUIT—APPLES AND PEARS.

We give a résumé of this business up to the present. It has been of a varied character, being in some respects encouraging and in others the opposite. The latter case was brought about by unsatisfactory conditions during the period when shipments of fall fruit were made. Hot spells prevailed and considerable detentions arose through the untoward effects of forest fires. Shipments from these causes arrived in a very bad condition and had to be realized with disastrous results. This market would have taken these apples and paid well for them under normal circumstances. As far as this type is concerned, Glasgow offered greater advantages than other places in respect that Scotland had few or no apples and early fruit was quite abundant in many parts of England; especially in what are known there as the 'home counties' which affect chiefly the London market. This is best illustrated by

the results of the cargoes of Gravensteins which were dispatched from Nova Scotia. Those sold in Glasgow realized satisfactorily, which could not be said in respect of what took place elsewhere. Winter stock shipped from Halifax was a feature of this market, as it has not been before. It was unusually fine. What militates against this fruit is the barrel in which it is packed. The Scottish trade is accustomed to the full-sized Ontario package and the wholesale people are at a disadvantage with anything smaller, even when a relatively lower price is demanded. In our opinion could a standard barrel be established, although heavier, it would be of great advantage as the extra quantity contained in it would be paid for and the same quantity of fruit being carried in a lesser number of packages would constitute an important saving in freight and expenses.

'At the outset of the season it was expected that crops of apples generally would be abundant and this was commented upon in the public press of this country, leading buyers and consumers to believe that low prices would rule. Early shipments of winter stock realized moderate figures but it soon became apparent that, through climatic reasons, the anticipations of abundance would not be fulfilled. This, along with a revival of trade in the United States, established an improved value, which as time progressed became more and more emphasized until to-day, when supplies have so much diminished, the advance in value, especially on cold storage stock, may be estimated as ruling from 70 to 100 per cent, and it appears to be evident that there will be no retrograde movement. It is very doubtful, however, whether there will be any further increase, as high prices have undoubtedly checked the demand. That the estimate of the European crop was not exaggerated is proved by the fact that on the continent of Europe there are at this moment considerable quantities of apples of various kinds which are now finding buyers in Great Britain. Hitherto there was no opening for them, but the great advance in the price of Americans, as herein stated, has given the European holders the opportunity which they stood very much in need of.

'Contemplating the season as a whole, it gives once more a conclusive proof of the high estimation in which Canadian fruit is held here. This will be continuous and will suffer no check except when prices are driven up to such a point as to put the supply beyond the reach of the bulk of the people.'

Copy of letter from Jas. Lindsay & Son, Edinburgh, dated January 20, 1909.

'We take this opportunity of giving you a few particulars regarding our opinion of apples in general arriving throughout the season. To begin with summer apples, shipments of these commenced of fairly good quality and fairly well packed, just about as near the Marks Act standard as we could possibly expect them. This continued for some time when a complete change came over them in packing, quality, condition, &c., all falling off very much, and whenever this took place prices dropped at once. This state of affairs continued until the finish of the summer apples.

'When winter apples commenced they were medium to start with, but they gradually improved, although we regret to say many lots were of inferior grade and not up to the packing standard, but the bulk of the shipments were fairly well up. Later shipments of Canadians, say packed ex. storage, are very much better handled and very much more correctly packed. They are what we call full standard packing. The quality of many of them is nice, everything that could be desired, and in consequence of same they have made full prices. We expect this to continue now until the finish of the season, which will be very shortly.

'*Nova Scotian Apples.*—We have not been much interested in them, but so far as our inspection has gone they have been from fair to good, better this season than we ever saw them. We term it the best season Nova Scotia has ever had, as in the absence of big supplies from Canada and elsewhere, they have got a particularly good chance, which they would not have received had there been an ample supply from Canada.

'*Western States Apples* have been from fair to good; many shippers have excellent stuff, indeed superior to Canadians in quality. We were always of opinion Canadian Baldwins were the best, but lately we have changed our opinion. We find the flavour of Western State Baldwins surpasses the Canadians, and for keeping quality it is quite as strong, so that it is an apple worth looking after.

'It is important to note that when apples are thoroughly well packed the demand continues good, and buyers give full and satisfactory prices, but whenever they find the packing to go below the standard it is detected immediately and the prices suffer very materially, much more so than they really should, but such is the result of indifferent packing.'

Copy of letter from Thomson & Mathieson, Glasgow, dated January 10, 1909.

'*Canadian Pears.*—We have had considerable supplies of these during the past season, which arrived in varying conditions, some lots in perfect order realizing big prices, and others over-ripe and had to be sold at a loss. Pears in general, we should say, should all be shipped in cold storage, and they ought to be pulled to the green side. The best carrying sorts are Duchess and Anjou. The Bartlett is a favourite here if it can be got sound, but it requires to be very carefully packed. Personally we prefer to handle Duchess and Anjou, as they almost invariably make money for the shippers. Keiffers, if clear in skin, sell fairly well as a common pear. We consider the 20-pound case the best package.

'*Apples.*—The apple season, which is now well advanced, has been much shorter than usual, and we should say it will prove a profitable one for all those who have handled quantities, the larger speculators specially having made a great deal of money on apples sold in December and January. Nova Scotia this year has had a wonderful crop and realized high prices. Of course, those speculators who have made so much money this season require to make something very substantial to compensate them for the great losses which they sustained last season.

'We would recommend growers of apples to hold and consign on their own account, as they are certainly entitled to a larger share of the profit than they have got this season. The apple is growing in favour and no one need fear holding good stock and consigning it to reliable brokers on this side. The only serious drawback this season was the large quantity of fall apples which arrived in the early part of the season wasty and lost money.'

Copy of letter from R. & W. Davidson, Glasgow, dated January 13, 1909.

'In reply to your request for a report regarding our importations of Canadian apples and pears in boxes, we have little to add to the information we have furnished you with verbally from time to time throughout the season. We have received consignments of large quantities of boxes from a number of growers' associations, and we find a rapidly increasing appreciation of this package on the part of those dealers who cater mostly for a high-class family trade.

'We look for a steady growth in the demand for the box package, provided carefully selected and well graded fruit only is packed in same, and when the fruit is really tip-top a ready outlet at considerably enhanced prices can be relied on, but shippers must not imagine that they have only to pack ordinary quality in the box package to ensure better returns than if the same fruit were packed in barrels. They will certainly always get as good a price for No. 2 grade in boxes as they will get in barrels, but they must not expect more.

'In the early part of the season some of the varieties, notably Greenings and Snows, were very seriously damaged by apple scab and a white fungus growth, which made the fruit nearly unsaleable and resulted in very heavy losses, but in all cases where the fruit was clean and well handled very satisfactory prices were realized.

'*Pears.*—Shipments of Duchess, Clairgeou, Anjous and Winter Nelis realized satisfactory prices in all cases where they arrived in sound condition, but large quan-

tities of Keiffers were disposed of at prices which must have been disappointing to the shippers, being unsuitable for the trade.

'The public in this country have not yet been educated to the use of stewing pears, and if an outlet for these in this country is going to be necessary it would, in our opinion, be desirable for growers to get up well devised cooking directions and have them printed and two or three dozen slips put into each box, and a printed request added to the retailer to distribute these cooking directions along with the fruit when selling same to the consumers. Whilst the public in this country cook enormous quantities of apples, they have hitherto used pears only for fresh consumption at the table, with the exception of canned pears from California. We are of opinion, however, that if carefully prepared cooking directions were issued along with the fruit, a trade for Keiffers would probably be developed.

'*Canned Apples.*—Some of the brands imported by us this season manifest a decided falling off in quality compared with previous seasons; others are quite up to their former standard.'

Copy of letter from Thomas Russell, Glasgow, dated January 21, 1909.

'Referring to your call the other day, we beg to say that the Canadian apple season, 1908-9 has been somewhat peculiar in many respects and notably on account of the very disastrous experiences at the beginning of the season. The crop of summer fruit was very heavy and a larger quantity than usual was exported in the month of September last, and the almost unprecedented hot weather which we had at that time and the delay to steamers in the St. Lawrence, after loading, on account of smoke from forest fires, had a most prejudicial effect on the condition of the fruit and many lots were landed here in deplorably bad order, and having to be immediately realized were sold at unremunerative figures. The warm weather at the time the apples were being packed and while in transit, and the fact of the apples themselves not being cooled before packing, caused many of the varieties, Greenings and such like especially, to arrive very badly spotted and in slack condition.

'When the weather conditions got better and the harder varieties of fruit began, there was an immediate improvement in the arrivals and in consequence an increased demand and higher prices at once ruled, and so far as winter fruit is concerned the season may be said to have been quite satisfactory.

'It must be taken into account, however, that the winter crop was appreciably lighter than for a number of years, and, when it is considered that the general trade of this country was at a very low ebb and the purchasing power of the people reduced to a minimum, very much lower values would have been obtained if the crop had been a normal one. Owing to the scarcity of 'Canadian' winter stock and to the fact of there being a very large crop of apples in Nova Scotia, an opening arose on our market for the latter and there was an exceptionally good demand but, through what we consider as an iniquitous condition attached to the charter of a portion of the space of steamers from Halifax to Glasgow, excluding free shipments of apples, a monopoly was created on the Glasgow market and the trade considerably curtailed to the detriment of all connected with it.'

REPORT OF BRISTOL CARGO INSPECTOR.

(*Capt. H. E. Shallis.*)

Bristol, January 13, 1909.

I herewith submit particulars of the work for the past year for the Port of Bristol, and also inclose some letters I have received from the various merchants of this city and of Cardiff, giving their respective views of the imports in which they are interested.

King Edward VII. and President Fallieres, modelled in Butter, life size, Canadian Pavillion, Franco-British Exhibition, 1908.

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CHEESE.

Taking the winter and summer sailings together, we have received in round figures about 390,000 boxes. As it is during the summer season that we have any trouble to contend with, I will refer to these shipments. From my own observations there has been a considerable improvement in the quantity of heated cheese as landed at the docks, compared with previous years; in fact, I may say that, with only one exception, there is no complaint at all in this direction. I have been in frequent touch with the different merchants and on this point they are all of the same opinion. One matter that has been drawn to my notice is the great amount of shrinkage, which has been particularly noticeable this season and which the receivers attribute to the fact that the cheese were sent forward in too new a condition. We have also had cases where on the cheese being cut, the centre was found to be filled in with some different and inferior quality, thereby spoiling the sale.

A large percentage still exists in the matter of broken boxes, though I am of opinion that there is an improvement in this direction, the chief breakages being in boxes from the Quebec districts, the wood seeming very brittle and apt to split at the least knock. The boxes from Ontario sections are much cleaner in appearance and stronger in every respect; the sewn type of box is no doubt the best for preventing breakage. Again in Quebec shipments we had numerous instances of the box being too large for the cheese, or vice versa.

BUTTER.

There has been a great improvement in the quantity to hand this year as compared with last, having received over 54,000 packages. The quality, generally speaking, has been very good, though in some cases there has been quite a fishy flavour, and in October last a quantity arrived here which has turned out very spotty and mouldy. This matter the merchants are taking up with the shippers, as they are unable to account for same. As to the boxes there is little to complain of, breakages being few, but still they are not as securely bound together as they might be and do not compare for strength with the New Zealand butter boxes.

BACON.

There is a slight increase in these shipments and what has come to hand has turned out good. The packages would be better if strengthened at the edges.

APPLES.

Our totals for the past season compare favourably with the previous year, and the arrivals during the latter part of the year showed a marked improvement both as to quality and packing. Cardiff received the most of the shipments landed at this port. Two lots came to hand for Birmingham in a very bad condition, but these were apparently packed and shipped in an over-ripe condition. The apples have this season been well and carefully graded, though there has been a slight increase of spotted apples especially with Russets and Northern Spies. The barrels have been strong and better marked and branded and the slacks fewer.

With regard to the general working of the cargoes, I am pleased to say that we are all the time making some improvement, the goods being handled with care and sent forward without delay. In the case of butter, if no receiving orders are to hand by the end of the day on which it is landed, it is at once sent to the cold storage on the dock, so that it does not suffer in any way. The ships to this port have all during the season run their refrigerator and cooled air chambers most satisfactorily and without any mishap. The ss. *Roman*, of the Dominion Line, has no refrigerator or cooled air accommodation, but is fitted up with good fans and has showed good re-

sults. The new dock was opened on July 9 and is now in full swing, and I am indebted to both the steamship and dock officials, with whom I am frequently in touch, for their courtesy and willingness to do all possible in the interest of Canadian produce.

Copy of letter from H. H. & S. Budgett & Co., Ltd., Bristol, dated December 18, 1908.

'*Canadian Cheese, 1908.*—As regards condition, we are pleased to be able to report favourably, taking the season as a whole, no cases of heated or badly carried cheese having come under our notice. Early in the season, however, you will remember, we had a few cheese which held some filled curd.

'As to quality, this has also been good, although perhaps not as good as usual, the cheese having had a tendency to become "tasty" rather sooner than in recent years. This may be accounted for by excess of moisture.

'*Shrinkage.*—We now come to the most important and striking point of the season's trading. Whether owing to defective make, method of carrying, improper marking of weights at factories, or incorrectness of weigher's average in Montreal, the loss in weight which has taken place between Canadian shipper and English importer has been phenomenal; differences of as much as 15 pounds on 5 cheese having been noticed.

'We lay particular stress on the importance of this point. The very heavy losses thrown upon importers thereby are bound in the end to militate against the Canadian article.

'The allowance made by New Zealanders in nearly all cases covers the loss sustained during a much longer period of transit.'

Copy of letter from Gardner, Thomas & Co., Bristol, dated December 28, 1908.

'In accordance with promise, we are just giving you underneath our opinion of the general condition of cheese which we have received this season from Canada. The cheese themselves have generally been in good condition. There have been just one or two shipments which showed heat, but we were of opinion that this was the fault of the boat. Some of the parcels also appeared to us to be shipped *much too young,* and we think if this continues to any great extent it must affect the consumption, as the cheese get into the grocers' hands before they are really fit to cut. The boxes from the Quebec district generally arrive in rather a rough state; they do not appear to be strong enough to carry the cheese. The heavier cheese which we receive from the Brockville and Ingersoll sections are much stronger and they arrive in far better condition and present a very much better appearance. This fault in the Quebec sections has, we believe, been mentioned several seasons, and it would help the sale of the goods if they could be brought over in presentable state.'

Copy of letter from Pullin, Thomas & Slade, Bristol, dated January 13, 1909.

'In reply to your inquiry respecting condition on arrival of Canadian cheese this year, we beg to say that with regard to summer heating we have had no cause to complain whatever, as every parcel has been landed in good condition in that respect.

'What, however, we have found very serious cause to complain of is the excessive shrinkage of the goods in transit, but this we do not attribute in any way to any conditions of transit, but arises, we feel certain, from the cheese being shipped too new, not properly matured before leaving the factory.

'We do not know whether this is within your department, but we certainly think it should be brought within the notice of the Canadian government, as it is not only the matter of shrinkage, but also it is detrimental to the proper maturing of the goods altogether and very injurious to the trade generally.

Copy of letter from Pullin, Thomas & Slade, Bristol, dated January 13, 1909.

'We are obliged to you for the close attention you have given to the arrivals of the Canadian produce on our Bristol boats. As far as the carrying is concerned, we

consider the past year one of the most satisfactory we have had, only one or two parcels during the whole season showing the slightest signs of heat, besides which we are confident the boxes on the whole have arrived in a less damaged condition than they sometimes have. We have before pointed out to two or three of the representatives of the Canadian government both in Canada and on this side the harm that has been done to the trade by cheese being shipped out too young, and although this has been somewhat remedied during the past year, at the same time they have not been quite as they should have been in this respect, many of the cheese appearing to leave the factory within seven or ten days of having been made, which certainly is not fair on the produce. If strict regulations were made in this respect, so that all makers should be put on the same footing, they would all benefit by it in the long run. This is a very important point, especially seeing that New Zealand is making such a big bid for the English trade. Up to the present we have been able to make a big premium for Canadian cheese over New Zealand, but unless every care is taken by your countrymen to hold this, they may find the result very shortly the opposite. The New Zealand government are taking every possible care with regard to their produce, besides which they have the advantage of the long voyage in suitable stowage where the cheese are gradually maturing. Another thing we should like to point out to you is the unsatisfactory average loss allowed in many instances to buyers on this side, who have absolutely no claim against shippers on the other side. The regulations in this respect do not seem to be quite as they should be, especially seeing the men on this side are so entirely in the hands of the sellers.

The arrangement we have when buying New Zealand cheese is that we get an allowance of one per cent which invariably more than covers the loss in weight on passage which, considering the long journey, we feel sure you will agree is highly satisfactory, whereas with cheese from Canada, although the journey only takes from seven to ten days, we always expect to find a loss of one to one and a half pounds per box.

Copy of letter from W. Titley & Sons, Bristol, dated January 7, 1909.

'In reply to your inquiry, we have no particular fault to find with condition of goods shipped from Canadian ports during the past season.

'*Cheese* generally has arrived in a less heated condition than heretofore and this we attribute to the cooled air storage with which most of the steamers have been fitted. The boxes in which the cheese are packed leave much to be desired; the wood is very frail and, in numerous cases, the boxes have not been large enough or strong enough to bear the weight.

'We have cause to make serious complaints in regard to weights. The difference between actual and marked weights during the past season has been most marked, entailing considerable loss on the importers. This is a matter that the Canadian government ought to take up with the factorymen and endeavour to obtain much more liberal scaling.

'At the early part of the season the cheese were shipped much too young and were not suitable for use for some time after they were landed. We do not think cheese ought to be shipped from the factories until they are at least ten or fourteen days old, and we believe that if this policy was carried out it would be much to the interest of not only the shippers on this side, but would result in an increased appreciation of the quality of Canadian cheese.

'In regard to *butter* the quality has been fairly good, but still there are many factories that have a fishy flavour, and the butter generally is not up to the standard of the best New Zealand or Australian factories. Boxes also are not nearly as strong as they should be, many of them being broken and the butter exposed when landed, which, of course, is very detrimental to the quality.'

Copy of letter from Whitefield & Company, Cardiff, dated January 5, 1909.

'With regard to the condition of Canadian produce, we find that bacon and butter are usually in a very good condition, and there is not much to complain of in the condition and pack of the cheese, but what is a very serious grievance, and will have to be remedied sooner or later, is the excessive short weight on all Canadian cheese. It is nothing unusual for a cheese to show a shrinkage of six, eight or even ten pounds. Of course, the cheese could never shrink this much and there must be some swindling going on on the other side. This is not a recent occurrence, but has been the general complaint for the last two or three years and will ultimately tell against Canadian cheese, as the only place now where we are unable to get weight from is Canada.'

BUTTER TRANSPORTATION.

From May 11 to October 17, the special iced car services for the carriage of butter to Montreal were again in force, the Dairy and Cold Storage Commissioner's Branch making the arrangements, as usual. Cars were run over 62 routes, and notwithstanding the fact that the summer was long and hot, the service all round was the best on record. The cars as a rule reached their destination on time, the icing was well looked after, and, generally speaking, the whole service was superior to that of former years. The cars on the various routes were closely looked after by this division, six inspectors being employed in this work, and any irregularities which were discovered were promptly brought to the attention of the railway companies, and, as a rule, were quickly remedied. A larger quantity of butter was carried in these cars than during the previous season, and, as a consequence, the deficit which had to be met by the department was smaller than in 1907. Owing to the extremely warm weather both creamery and dairy butter was loaded in a warmer condition than in 1907, but as the cars were well iced, the average temperature of the butter at Montreal was about the same as the preceding season. In the early part of the summer a circular was sent to the shippers of dairy butter in Western Ontario pointing out that their shipments were usually loaded in the car in very warm condition, to the detriment of the creamery butter carried in the same car. They were asked, as far as possible, to provide cool storage for their butter while it was awaiting shipment and to see that it was not sent to the railway station until about the time the way-freight was due. This circular undoubtedly had some effect, as a considerable improvement in the temperature of dairy butter was noted by our inspectors during the latter part of the summer. Our Ontario inspector came into Toronto the end of each week to see the cars unloaded and the Montreal shipments transferred. He noted the temperature of the butter as it was removed from the cars and was on hand when the through cars were being iced. The temperature of the butter tested in the Toronto yards have been averaged and the results are shown in Table No. 4.

TEMPERATURES OF QUEBEC BUTTER.

The following tables show the temperatures of butter at railway shipping points in the province of Quebec during the season of 1908:—

SESSIONAL PAPER No. 15a

TABLE No. 1.—AVERAGE TEMPERATURES OF BUTTER AT QUEBEC RAILWAY SHIPPING POINTS, SEASON, 1908. (Inspector F. A. Knowlton.)

Creamery.	Location.	Railway.	No. of Packages Tested.	Average Temperature.
				Deg.
Bromptonville	Bromptonville	G.T.R.	3	42·0
Franklin Centre (N.B.3)	Ormstown	G.T.R.	4	42·5
Sawyerville	Sawyerville	C.P.R.	3	43·3
Huntingdon (32)	Huntingdon	G.T.R.	3	43·3
Bedford	Bedford	C.P.R.	9	43·9
Eastman	Eastman	O.M. & C.P.R.	3	44·0
Vale Perkins	Mansonville	O.M. & C.P.R.	4	45·5
Bromptonville (J.G.)	Bromptonville	G.T.R.	4	46·0
Mansonville	Mansonville	O.M. & C.P.R.	4	46·5
Franklin Centre (N.B.2)	Ormstown	G.T.R.	4	47·0
Magog	Magog	B.& M.& C.P.R.	58	47·3
Malboro	Kingsbury	O.M. & C.P.R.	4	47·5
St. Francis Creamery	Richmond	G.T.R.	4	47·5
Mystic	Mystic	C.P.R.	6	48·0
Knowlton	Knowlton	C.P.R.	16	48·5
Fairfax	Ayer's Cliff	B.& M.& C.P.R.	8	48·5
L'Ange Gardien (Olive)	L'Ange Gardien	C.P.R.	4	48·5
L'Ange Gardien (Ivy)	L'Ange Gardien	C.P.R.	4	48·5
Kingsey	Richmond	G.T.R.	4	48·5
Warden	Warden	C.P.R.	16	48·6
Fitch Bay	Smith's Mills	B.& M.& C.P.R.	23	48·8
Iron Hill	West Shefford	C.P.R.	25	49·2
L'Ange Gardien (Lily Dale)	L'Ange Gardien	C.P.R.	3	49·3
Coaticook	Coaticook	G.T.R.	8	49·4
Stanstead	Stanstead	B.& M.& C.P.R.	16	49·8
Dunham	Stanbridge East	C.V.R.	8	50·0
Laroche	Laroche	C.P.R.	15	50·0
West Shefford	West Shefford	C.P.R.	39	50·2
Rockburn	Ormstown	G.T.R.	4	50·5
Barnston Corner	Barnston	G.T.R.	7	50·9
Stanbridge East	Stanbridge East	C.V.R.	16	50·9
Missisquoi	Frelighsburg	C.V.R.	12	51·0
Mount Orford	Cherry River	B.& M.& C.P.R.	47	51·1
St. Evariste (D.23)	St. Ephrem	Q.C.R.	3	51·3
St. Evariste	St. Ephrem	Q.C.R.	3	51·3
North Stanbridge	Stanbridge East	C.V.R.	12	51·7
North Hatley	Ayer's Cliff	B.& M.& C.P.R.	12	51·7
St. Edwidge	Coaticook	G.T.R.	8	51·8
East Hatley	Ayer's Cliff	B.& M.& C.P.R.	8	52·0
St. Armand	St. Armand	C.V.R.	9	52·2
St. Ephrem (56)	St. Ephrem	Q.C.R.	6	52·3
St. Etienne	Eastman	B.& M.& C.P.R.	42	52·3
Martinvale	Martinvale	C.P.R.	3	52·7
Roxton Pond	South Roxton	C.P.R.	3	52·7
Lennoxville	Lennoville	B.& M.& C.P.R.	5	52·8
Stanbridge Station	Stanbridge	C.V.R.	9	52·9
Herdman's (N.B.5)	Huntingdon	G.T.R.	4	53·0
Wickham	Wickham	C.P.R.	15	53·1
St. Herménégilde	Coaticook	G.T.R.	7	53·1
Ste. Rosalie	Ste. Rosalie	C.P.R.	3	53·3
Cote St. Joseph	Bromptonville	G.T.R.	6	53·6
Compton	Compton	G.T.R.	9	53·6
Pike River	Stanbridge	C.V.R.	9	54·0
Baldwin's Mills	Baldwin's Mills	G.T.R.	8	54·0
Roxton East	Roxton Falls	C.P.R.	4	54·0
Katevale	Magog	B.& M.& C.P.R.	63	54·2
St. Simon (Dale 21)	St. Simon	C.P.R.	4	54·3
St. Pie (L.C. 99)	St. Pie	C.P.R.	4	54·5
Dunham (Acme)	Stanbridge East	C.V.R.	4	54·5
South Roxton	South Roxton	C.P.R.	3	54·7
S. B. No. 1	Coaticook	G.T.R.	4	55·0
St. Remi	St. Remi	G.T.R.	1	55·0
Durocher	Durocher	C.V.R.	2	55·0
Huntingdon (Star)	Huntingdon	G.T.R.	3	55·3
E. T. Dairy Produce Co	Ayer's Cliff	B.& M.& C.P.R.	8	55·3
Holton	St. Remi	G.T.R.	8	55·5

AVERAGE TEMPERATURES OF BUTTER—*Continued.*

Creamery.	Location.	Railway.	No. of Packages Tested.	Average Temperature.
				Deg.
L. P. 27	St. Ephrem	Q.C.R.	6	55·7
St. Simon	St. Simon	C.P.R.	3	56·0
South Stukley	South Stukley	B.& M.& C.P.R.	36	56·4
I. 2. C.	St. Ephrem	Q.C.R.	6	56·7
Hemmingford	Hemmingford	G.T.R.	10	56·8
White Daisies	St. Ephrem	Q.C.R.	9	56·9
North Shefford	South Roxton	C.P.R.	9	57·3
Rockside No. 4	St. Pie	C.P.R.	4	57·3
R. 3	St. Ephrem	Q.C.R.	6	57·3
West Dunham	Stanbridge East	C.V.R.	16	57·4
Canada A. 21	Compton	G.T.R.	9	57·4
Fridette and Pachaud	Sherrington	G.T.R.	14	57·4
Royal Canadian Factory	St. Pie	C.P.R.	4	57·5
Notre Dame de Stanbridge	Des Rivieres	C.V.R.	3	58·0
Maple Leaf	St. Remi	G.T.R.	8	58·3
Frontier	Hemmingford	G.T.R.	4	58·5
Barrington	Barrington	G.T.R.	2	59·0
Rivart and Lefebvre	Sherrington	G.T.R.	5	59·2
St. Michel	St. Michel	G.T.R.	4	60·0
St. Brigide	St. Brigide	C.V.R.	3	60·0
Roxham	Hemmingford	G.T.R.	3	60·0
Abbotsford	Abbotsford	C.P.R.	2	60·0
Hill Top, Canada	St. Ephrem	Q.C.R.	3	64·0

In the foregoing table the lowest average temperature is 42 degrees and the highest 64 degrees. In 1907 the extremes were 36·6 degrees and 56·8 degrees; in 1906, 38 degrees and 64 degrees; and in 1905, 41·8 degrees and 62·5 degrees.

TABLE No. 2.—AVERAGE TEMPERATURES OF BUTTER AT QUEBEC RAILWAY SHIPPING POINTS, SEASON 1908. (Inspector J. N. Lemieux.)

Joseph Fleury	Louisville	C.P.R.	5	42·2
Pierre Proulx	Methot's Mills	G.T.R.	13	43·1
S. Comtois (1,271)	St. Gabriel de Brandon	C.P.R.	4	43·7
Geo. Bennett (Hazel Bank)	New Glasgow	C.N.Q.R.	2	44·5
J. A. McCallum	Danville	G.T.R.	11	44·9
François Roy	St. Philippe	I.C.R.	7	45·1
D. Guilbault	St. Gabriel de Brandon	C.P.R.	3	45·3
E. Demers	St. Arsène	I.C.R.	12	45·4
A. Dandeneau	St. Gabriel de Brandon	C.P.R.	5	45·4
Nap. Brochu	Parisville	L. & M.	5	45·6
Felix Dansereau	Verchères	Q. M. & S.	7	45·7
Cyris Godbout (B)	St. Eloi	I.C.R.	6	46·1
Israel Dion	Papineau	C.N.Q.R.	3	46·3
Arthur Lupien	St. Wenceslas	I.C.R.	2	46·5
Eugene Cote	Isle Verte	I.C.R.	10	46·7
W. Gareau	St. Jérome	C.N.Q.R.	10	46·9
G. Bennett (Elm Bank)	New Glasgow	C.N.Q.R.	4	47·0
Arthur Grenier	Joliette	C.N.Q.R.	1	47·0
Forget & Parthenais	Bruchesi	C.P.R.	2	47·0
W. H. Wilson	St. Agapit	G.T.R.	8	47·2
Auguste Breton	St. Arsène	I.C.R.	13	47·3
C. Guitard	St. Eustache	C.P.R.	5	47·4
J. A. Saindon	St. Arsène	I.C.R.	7	47·5
A. Michaud	Rimouski	I.C.R.	2	47·5
J. Levasseur	Little Metis	I.C.R.	3	48·0
O. Cardinal	Labelle	C.P.R.	2	48·0
A. Lapalme	Cavignac	C.P.R.	2	48·0
C. Dandelin	St. Pie	C.P.R.	2	48·0
Irenee Thibault	Caconna	I.C.R.	5	48·2
A. A. Nicole	Trois-Pistoles	I.C.R.	7	48·2
Gendreau & Imbeau	Little Metis	I.C.R.	6	48·3
J. B. Grenier	St. Rosalie	C.P.R.	5	48·4
Syndicat St. Paschal	St. Paschal	I.C.R.	7	49·0

AVERAGE TEMPERATURES OF BUTTER—*Continued.*

Creamery.	Shipping Station.	Railway.	Number of Packages Tested.	Average Temperature.
				Deg.
Philibert Gauthier	Little Metis	I.C.R.	6	49·0
Jos. Anctil	Little Metis	I.C.R.	5	49·2
A. Mercier	St. Agapit	G.T.R.	15	49·2
A. Coupal	Henryville	Q.M. & S.	6	49·3
J. J. Allain	St. Raymond	Q. & L. St. J.	2	50·0
P. Lavalle	St. Gabriel de Brandon	C.P.R.	6	50·0
J. deL. Taché	Richmond	G.T.R.	11	50·3
A. Ravenelle	St. Pie	C.P.R.	2	50·5
A. A. Nicole	St. Simon	I.C.R.	7	50·6
O. Mercier	St. Charles Junction	I.C.R.	6	50·8
L. Lamothe	Clarenceville	Q.M. & S.	8	50 8
Eugene Roy	St. Eloi	I.C.R.	10	50·9
S. Comtois (O.D. & S.)	St. Gabriel de Brandon	C.P.R.	4	51·0
C. Godbout (Ayer 75)	Isle Verte	I.C.R.	6	51·0
L. A. Boucher	L'Islet	I.C.R.	4	51·0
O. Gelinas	Charette Mills	C.N.Q.R.	2	51·6
L'Emyer & Chaput	St. Elizabeth	C.N.Q.R.	9	51 1
D. Pelletier	Acton Vale	G.T.R.	4	51·2
Alp. Sansterre	Little Metis	I.C.R.	9	51·5
E. A. Pepin	St. Bazile	C.P.R.	13	51·5
Eugene Godbout	St. Eloi	I.C.R.	6	51·6
F. Hamel	St. Agapit	G.T.R.	15	51·6
G. Bennett (Oak Bank)	New Glasgow	C.N.Q.R.	4	51·7
Syndicat de St. Philomène	St. Philomène	L. & M.	6	51 8
M. Brcault	Montcalm	C.N.Q.R.	2	52·0
Boisvert & Bussiere	Charette Mills	C.N.Q.R.	1	52·0
Henri Diamant	St. Raymond	Q. & L. St. J.	2	52·0
C. Godbout (A.F.)	Isle Verte	I.C.R.	8	52·1
Ludger Rioux	Trois-Pistoles	I.C.R.	11	52·1
Arthur Paris	Parisville	L. & M.	4	52·2
Anthyme Beaudet	Parisville	L. & M.	7	52·2
Eugene Metivier	L'Islet	I.C.R.	7	52·2
J. O. Naud	Portneuf	C.P.R.	7	52·4
Cassen Bros	Richmond	G.T.R.	6	52·5
M. Boucher	Joliette	C.N.Q.R.	2	52·5
E. Lemaire	St. Guillaume	C.P.R.	2	52·5
Horace Leroux	St. Georges	C.N.Q.R.	5	52·6
Grenon Freres	St. Barnabé	Q.M. & S.	20	52 9
W. Lamy	St. Paulin	C.N.Q.R.	2	53·0
P. Laroche	Warwick	G.T.R.	1	53·0
H. A. McNeil Bros	Napierville	Nap. Jct.	1	53 0
B. Bergeron	St. Wenceslas	I.C.R.	2	53 0
H. Gagnon	Little Metis	I.C.R.	6	53·0
A. Gamache	St. Jean Port Joli	I.C.R.	4	53·0
E. Dion (B)	Lanoraie	C.P.R.	2	53·0
Cyris Godbout (C.G.)	St. Eloi	I.C.R.	7	53·1
F. X. Senay	L'Ange Gardien	C.P.R.	4	53·2
J. B. Theriault	Cacouna	I.C.R.	11	52·2
Isidore Jodoin	Acton Vale	G.T.R.	5	53·2
D. Kerouack	St. Agapit	G.T.R.	11	53·3
A. Belzil	St. Simon	I.C.R.	11	53·3
J. E. B. Marchand	La Perade	C.P.R.	3	53·3
Héon & Helie	St. Wenceslas	I.C.R.	2	53·5
O. Cardin	Upton	G.T.R.	7	53·5
Ed. Jean	St. Fabien	I.C.R.	12	53·6
Cyris Godbout (C)	St. Eloi	I.C.R.	3	53·6
George Roy	Montmagny	I.C.R.	4	53·7
J. C. Rioux	St. Flavie	I.C.R.	6	53·8
N. Demers	St. Agapit	G.T.R.	5	53·8
Dr. Dubé	St. Agapit	G.T.R.	7	54·0
J. E. Binette	St. Eustache	C.P.R.	2	54·0
Jos. Paquette	St. Eustache	C.P.R.	1	54·0
A. Grise	St. Roch	Q.M. & S.	2	54·0
T. St. Georges	Joliette	C.N.Q.R.	4	54·2
J. Dumas	Trois-Pistoles	I.C.R.	8	54·3
Sam Pellerin	Joliette	C.N.Q.R.	3	54·3
J. O. Naud	St. Bazile	C.P.R.	11	54·5

AVERAGE TEMPERATURES OF BUTTER—*Continued.*

Creamery.	Shipping Station.	Railway.	Number of Packages Tested.	Average Temperature.
				Deg.
F. Thibault	L'Islet	I.C.R	2	54·5
Jos. Mireault	Joliette	C.N.Q.R	2	54·5
A. Deslauriers	Charlemagne	C.N.Q.R	2	54·5
E. Dion (G 618)	Lanoraie	C.P.R	5	54·6
H. Lessard	St. Paulin	C.N.Q.R	6	54 6
W. Ferron	St. Paulin	C.N.Q.R	3	54·6
Jos. Duquette	St. Jérome	C.N.Q.R	8	54·6
Emile Maurice	St. Liboire	G.T.R	6	54·6
G. Vachon	Upton	G.T.R	4	54 7
A. Brunette	St. Jérome	C.N.Q.R	4	54·7
L. L. Gale	St. Cyr	G.T.R	6	54·8
A. Tremblay	Dugas	C.N.Q.R	2	55·0
Alp. Lapointe	Montcalm	C.N.Q.R	2	55·0
Ovide Couture	St. Anaclet	I.C.R	5	55 0
J. Girouard	Stanfold	G.T.R	1	55·0
Honoré Rioux	Danville	G.T.R	2	55·0
P. Thériault	Joliette	C.N.Q.R	3	55·0
Albert Lapointe	Joliette	C.N.Q.R	3	55·0
Lucien Bélanger	St. Charles Jct	I.C.R	8	55·1
John April	St. Arsène	I.C.R	6	55·1
E. Lanthier	St. Eustache	C.P.R	7	55·2
Israël Paradis	St. Gabriel de Brandon	C.P.R	8	55·3
Joseph Ratelle	Joliette	C.N.Q.R	3	55·3
Eugène Asselin	St. Cuthbert	C.N.Q.R	2	55·5
T. M. Wilsou Co	St. Lin	C.P.R	10	55·5
A. Robidoux	Labelle	C.P.R	2	55·5
P. F. Arpin	St. Roch	Q.M. & S	2	55·5
C. Godbout (W 514)	Isle Verte	I.C.R	5	55·6
Philippe Plante	St. Flavie	I.C.R	5	55·6
John Burns	St. Julienne	C.N.Q.R	4	55·7
Frs. Robitaille	St. Gabriel de Brandon	C.P.R	5	55·8
Jos Lemoine	Charlotte	I.C.R	5	55·8
Jos. Tremblay	Little Métis	I.C.R	6	55·8
A. Frappin	Frappin	Q.M. & S	1	56·0
H. Bergeron	St. Paulin	C.N.Q.R	5	56·0
A. Blouin	Montcalm	C.N.Q.R	2	56·0
A. L. Héureux	St. Gabriel de Brandon	C.P.R	6	56·0
A. Lapalme	St. Hugues	C.P.R	2	56·0
J. Rocheleau	St. Gabriel de Brandon	C.P.R	9	56·1
Couture Frères	Henryville	Q.M. & S	10	56·1
Armand Dansereau	Verchères	Q.M. & S	5	56·4
G. Marion	St. Gabriel de Brandon	C.P.R	7	56·4
O. Messier	Upton	G.T.R	2	56·5
John Houle	St. Cyr	G.T.R	3	56·6
N. Leblanc	St. Gabriel de Brandon	C.P.R	5	56·6
J. O. Goyette	St. Liboire	G.T.R	5	56·6
François Morin	St. Michel	I.C.R	3	56·6
Horace Brunelle	Upton	G.T.R	7	56·7
E. Beaudry	St. Pie	C.P.R	7	56·8
W. Giraid	Acton Vale	G.T.R	2	57·0
Jos. Gaudet	St. Marie Salomée	C.N.Q.R	6	57·0
Z. Gauthier	Mascouche	C.P.R	2	57·0
Syndicat St. Roch	Mascouche	C.P.R	4	57·0
E. Beauregard	Montcalm	C.N.Q.R	2	57·0
G. Allard	Stanfold	G.T.R	1	57·0
Ludger Lacasse	St. Agathe	C.P.R	4	57·2
Cléophas Marsau	St. Edouard	I.C.R	5	57·2
L. Lecompte	St. François	I.C.R	4	57·2
J. N. Ethier	St. Julienne	C.N.Q.R	4	57·2
C. Laviolette	St. Julienne	C.N.Q.R	4	57·2
R. Chagnon	Duncan	I.C.R	3	57·3
J. A. Ratte	St. Pierre R. du S.	I.C.R	5	57·4
Lachapelle & Lamarche	St. Julienne	C.N.Q.R	5	57·4
L. Letourneau	Stanfold	G.T.R	2	57·5
Albert Corriveau	St. Boniface	C.N.Q.R	2	57·5
Nap. Roy	Trois-Pistoles	I.C.R	2	57·5
Denis Lariviere	Lemieux	I.C.R	2	57 5

AVERAGE TEMPERATURES OF BUTTER—*Continued.*

Creamery.	Shipping Station.	Railway.	Number of Packages Tested.	Average Temperature.
				Deg.
E. Marchand	Daveluyville	I.C.R.	2	57·5
J. P. Charpentier	Danby	G.T.R.	2	57·5
N. Lussier	Acton Vale	G.T.R.	6	57·5
M. McDuff	Upton	G.T.R.	5	57·6
Gelinas & Domaine	Charette Mills	C.N.Q.R.	3	57·6
D. Brodeur	L'Ange Gardien	C.P.R.	4	57·7
A. Tremblay	St. Jean Port Joli	I.C.R.	4	57·7
Frs. Painchaud	St. Michel	I.C.R.	4	57·7
J. H. Vadnais	L'Ange Gardien	C.P.R.	4	57·7
A. Rainville	St. Gabriel de Brandon	C.P.R.	6	57·8
Ed. Barrette	St. Julienne	C.N.Q.R.	1	58·0
C. Forget	Montcalm	C.N.Q.R.	2	58·0
Elz. Beaudoin	Warwick	G.T.R.	1	58·0
C. Bernier	Cap St. Ignace	I.C.R.	2	58·0
O. Bellehumeur	St. Eugène	I.C.R.	1	58·0
F. Caron	St. Jean Port Joli	I.C.R.	5	58·0
O. Cardinal	St. Lin	C.P.R.	4	58·0
Albert Desrosiers	Joliette	C.N.Q.R.	1	58·0
P. Deragon	St. Pie	C.P.R.	1	58·0
Etienne Blanchard	Upton	G.T.R.	2	58·0
G. Beausoleil	St. Alexis	C.N.Q.R.	4	58·2
Elzéar Blais	St. Pierre Riv. du S.	I.C.R.	4	58·2
Delphis Tetreault	Upton	G.T.R.	4	58·2
J. H. Paquette	"	G.T.R.	7	58·2
Wilfrid St. Onge	Mount Johnson	Q.M. & S.	4	58·2
Alp. Massé	Lyster	G.T.R.	3	58·3
Ludger Pellerin	Stanfold	G.T.R.	3	58·3
H. Lafrance	St. Eustache	C.P.R.	8	58·3
U. Roy	St. Elizabeth	C.N.Q.R.	8	58·3
J. B. Lanthier	St. Jérome	C.N.Q.R.	6	58·3
E. Paquette	Upton	G.T.R.	5	58·4
A. L. P. Lanthier	New Glasgow	C.N.Q.R.	2	58·5
E. Dion (D I)	Lanoraie	C.P.R.	2	58·5
Télesphore Lizotte	St. Louise	I.C.R.	4	58·5
G. E. Duquette	St. Hyacinthe	G.T.R.	6	58·5
Aug. Pelletier	St. Louise	I.C.R.	2	58·5
Jos. Dessert	St. Eustache	C.P.R.	9	58·5
M. E. Tremblay	Clarenceville	Q. M. & S.	13	58·5
Alp. Jean	St. François	I.C.R.	5	58·6
L. P. Paradis	St. Valier	I.C.R.	5	58·6
Edmond Bélanger	Cap St. Ignace	I.C.R.	4	58·7
A. Lussier	Bagot	I.C.R.	7	58·8
H. Charland	St. Simon	C.P.R.	5	58·8
Ovide Chagnon	Upton	G.T.R.	5	58·8
J. D. Blanchette	Elgin Road	I.C.R.	12	58·9
C. Vadnais	Cavignac	C.P.R.	2	59·0
E. Lefebvre	St. Hugues	C.P.R.	2	59·0
Joseph St. Pierre	Ste. Rosalie	C.P.R.	2	59·0
A. Langevin	St. Pie	C.P.R.	2	59·0
P. Kerouack	L'Islet	I.C.R.	2	59·0
A. Drouin	Ste. Sophie	C.N.Q.R.	3	59·0
Louis Lebeau	St. Paul l'Ermite	C.N.Q.R.	2	59·0
Wilfrid Pellerin	St. Boniface	C.N.Q.R.	4	59·0
O. Bournival	Charette Mills	C.N.Q.R.	3	59·0
E. Dion (E. D.)	Lanoraie	C.P.R.	2	59·0
Jos. Landry	St. Germain	I.C.R.	2	59·0
E. Brosseau (E. B. S)	Ste. Adele	C.P.R.	4	59·0
Joseph Lemonde	St. Liboire	G.T.R.	6	59·1
Nap. Birtz	Contrecoeur	Q.M. & S.	8	59·2
E. Cormier	St. Antoine	Q.M. & S.	6	59·3
P. Provost	Acton Vale	G.T.R.	6	59·3
Hermas Lacasse	Bélisle's Mills	C.P.R.	3	59·3
E. Brosseau (E.B.I.)	St. Jérome	C.N.Q.R.	3	59·3
N. Heroux	Charette Mills	C.N.Q.R.	3	59·3
Jos. Guertin	St. Liboire	G.T.R.	5	59·4
S. Simard	St. Agathe	C.P.R.	2	59·5
Jos. Blanchette	Ste. Anne	I.C.R.	2	59·5

AVERAGE TEMPERATURES OF BUTTER—*Continued.*

Creamery.	Shipping Station.	Railway.	Number of Packages Tested.	Average Temperature.
				Deg.
J. W. Kimpton	Shawbridge	C.P.R.	2	59·5
A. Lafond	St. Gabriel de Brandon	C.P.R.	2	59·5
A. Leclerc	St. Eugène	I.C.R.	9	59·5
L. E. Cote	Montmagny	I.C.R.	4	59·5
La Cie. de Laiterie	St. Pierre	I.C.R.	4	59·5
A. Lemay	Daveluyville	I.C.R.	2	59·5
J. O. Fournier	St. Charles Jct.	I.C.R.	8	59·6
H. Lecompte	Acton Vale	G.T.R.	6	59·6
Sweet Milk Condensing Co.	St. Lin	C.P.R.	3	59·6
E. Sylvestre	Duncan	I.C.R.	3	59·6
Lacasse & Blanchet	St. Charles Jct	I.C.R.	3	59·6
J. B. St. Pierre	St. Philippe	I.C.R.	7	59·7
Nap. Dion	St. Canute	C.N.Q.R.	7	59·7
Oscar Gilbert	Plessisville	G.T.R.	4	59·7
Arthur Mortin	St. Roch	Q.M. & S.	5	59·8
A. Deslauriers	St. Liboire	G.T.R.	5	59·8
A. M. Methot	Warwick	G.T.R.	2	60·0
S. Perreault	Stanfold	G.T.R.	1	60·0
P. Allard	St. Paulin	C.N.Q.R.	5	60·0
Geo. Bennett	Paisley	C.N.Q.R.	3	60·0
Fortin & Blanchet	Napierville	Nap. Jct. R.	1	60·0
Robillard & Poisson	St. Édouard	Nap. Jct. R.	1	60·0
T. Nicolle	St. Pierre	I.C.R.	4	60·0
M. Beaulieu	St. Vallier	I.C.R.	10	60·0
Jos. Roy	St. Vallier	I.C.R.	2	60·0
Morceau & Corriveau	St. Vallier	I.C.R.	5	60·0
J. B. A. Genelle	St. Germain	I.C.R.	2	60·0
Roch. Gamoche	St. Lin	C.P.R.	3	60·0
J. J. Beauregard	St. Lin	C.P.R.	1	60·0
H. Provost	L'Epiphanie	C.N.Q.R.	2	60·0
Paul Robidoux	Cavignac	C.P.R.	2	60·0
J. B. Chagnon	St. Pie	C.P.R.	2	60·0
E. Casavant	Abbotsford	C.P.R.	1	60·0
Gilbert Brunet	St. Georges	I.C.R.	6	60·0
E. Dion (L.C. 81)	Lanoraie	C.P.R.	4	60·0
J. P. Rocheleau	Abbotsford	C.P.R.	1	60·0
Israel Thouin	Ste. Agathe	C.P.R.	6	60·1
A. Provost	St. Eugène	I.C.R.	7	60·2
Pacifique Houle	Duncan	I.C.R.	7	60·4
N. Dufresne	Bagot	I.C.R.	7	60·5
David Girard	Ste. Angèle	Q.M. & S.	8	60·5
George Fournier	Montmagny	I.C.R.	5	60·6
A. Davis	Piedmont	C.P.R.	3	60·6
A. M. St. Cyr	La Perade	C.P.R.	3	60·6
E. Rinquette & Frère	Duncan	I.C.R.	7	60·8
E. Decelles	Bagot	I.C.R.	6	60·8
J. B. Sansregret	Lavaltrie	C.P.R.	5	60·8
D. Houle	St. Germain	I.C.R.	4	60·8
James Miller	Lisgar	G.T.R.	4	61·0
S. Deslauriers	Danby	G.T.R.	2	61·0
Omer Hardy	Daveluyville	I.C.R.	2	61·0
H. Mailhiot	Daveluyville	I.C.R.	2	61·0
A. Blanchet	St. Louis de B.	Q.M. & S.	2	61·0
Philemon Lebuis	St. Eustache	C.P.R.	5	61·0
Amedé Gandreau	Trois Saumons	I.C.R.	4	61·2
Albert Houle	St. Simon	C.P.R.	8	61·2
Charles E. Gravel	Lavaltrie	C.P.R.	6	61·3
Joseph Gourre	L'Epiphanie	C.N.Q.R.	2	61·5
E. Brosseau (E.B. 7)	Ste. Adèle	C.N.Q.R.	4	61·5
D. D. Laurin	St. Janvier	C.P.R.	2	61·5
J. E. Messier	Verchères	Q.M. & S.	2	61·5
Éd. Boulay	St. Vallier	I.C.R.	4	61·5
L. J. A. Robillard	St. Georges	C.N.Q.R.	5	61·6
N. Boucher	Charette Mills	C.N.Q.R.	3	61·6
Charles Duquette	St. Hyacinthe	G.T.R.	4	61·7
J. Meunier	Henryville	Q.M. & S.	5	61·8
C. O. Savard	St. Vallier	I.C.R.	2	62·0

AVERAGE TEMPERATURES OF BUTTER—*Continued.*

Creamery.	Shipping Station.	Railway.	Number of Packages Tested.	Average Temperature.
				Deg.
Frs. Dion	St. Charles Jct	I.C.R.	3	62·0
E. Thinelle	St Lin	C.P.R.	2	62 0
E. Brosseau	Piedmont	C.P.R.	4	62·0
A. Brasseur	St. Pie	C.P.R.	4	62·0
V. Gevry	St. Pie	C.P.R.	2	62·0
M. Beauchesne	Danville	G.T.R.	5	62·0
W. Deshaies	Daveluyville	I.C.R.	2	62·0
J. L. Janelle	Daveluyville	I.C.R.	2	62·0
J. A. Courchene	Ste. Perpétue	I.C.R.	1	62·0
Alp. Lacharite	Ste. Perpétue	I.C.R.	1	62·0
J. Duval	Carmel	I.C.R.	1	62·0
Eustache Menard	L'Anse a Giles	I.C.R.	2	62 5
J. O. Naud	Portneuf	C.P.R.	2	62·5
J. E. Grenier	St. Paulin	C.N.Q.R.	3	62·6
P. A. Savoie	St. Eugène	I.C.R.	5	62·6
J. B. St. Pierre	Lesage	C.P.R.	4	62 7
J. A. Allaire	L'Epiphanie	C.N.Q.R.	5	62·8
A. Chaguon	Britannia Mills	G.T.R.	5	63 0
C. Lussier	Rougemont	Q.M. & S.	7	63·0
Boisvert & Bussiere	Yamachiche	C.P.R.	2	63·0
Gregoire Belanger	Piedmont	C.P.R.	2	63 0
H. Lacasse	St. Margaret	C.P.R.	1	63 0
E. Brosseau (E. B. 6)	St. Jérome	C.N.Q.R.	4	63·0
E. Brosseau (E. B. 4)	St. Jérome	C.N.Q.R.	3	63·3
Amedée Touchette	St. Pie	C.P.R.	3	63 3
T. Messier	Bagot	I.C.R.	8	63·3
D. Milot	Yamachiche	C.P.R.	2	63·5
Alfred Riendeau	St. Hyacinthe	G.T.R.	2	63·5
L. Benoit	St. Louis de B.	Q.M. & S.	2	63·5
Jos. Shaw	Lesage	C.P.R.	2	63·5
Société de Fleury	St. Judes	Q.M. & S.	2	63·5
Thomas Lacerte	Yamachiche	C.P.R.	8	63·6
Jos. Robidoux	St. Roch	Q.M. & S.	3	63·6
Hector Lapalme	Abbotsford	C.P.R.	4	63·7
J. B. Beauchemin	St. Perpétue	I.C.R.	1	64·0
Ovila Gendron	Yamachiche	C.P.R.	7	64·2
E. Brosseau (E. B. 5)	St. Jérome	C.N.Q.R.	3	64·3
Dubois Deshaies	Daveluyville	I.C.R.	2	64·5
D. Legaré	Shawbridge	C.P.R.	2	64·5
J. B. Phaneuf	Contrecoeur	Q.M. & S.	2	65·0
A. Bourgoin	Mascouche	C.P.R.	2	65·5
S. Boulerice	St. Edouard	Nap. Jct. R.	1	66·0
Louis Mortin	Drummondville	I.C.R.	1	66·0
W. Vezina	St. Bazile	C.P.R.	5	66·2
Dionis Milot	Yamachiche	C.P.R.	2	66·5
N. Fournier	Mauseau	I.C.R.	4	66·7
Julien Beaudet	Parisville	L. & M. R.	5	67 6
A. Dupont	Danby	G.T.R.	3	68·0
Jos. Guilbault	Mascouche	C.P.R.	1	68·0
H. Bourassa	Yamachiche	C.P.R.	2	68·5

It will be noted that in 1908 the lowest average was 42·2 degrees and the highest 68·5 degrees. The comparison for the three previous years was as follows: 1907, 39·5 degrees and 68 degrees; 1906, 42·4 degrees and 68 degrees; 1905, 51·1 degrees and 67·7 degrees.

TABLE No. 3.—AVERAGE TEMPERATURES OF BUTTER AT RAILWAY SHIPPIN POINTS IN ONTARIO, SEASON 1908. (Inspector L. L. Cooke.)

Creamery.	Station.	No. of Packages Tested.	Aver Tem perat
			Deg
Holstein	Holstein	4	47
Walkerton Egg and Dairy	Fergus	7	48
Kennette	Fergus	13	50
Paisley	Paisley	6	50
Dungannon	McGaw	17	51
Port Perry	Port Perry	17	52
Pleasant View	Owen Sound	15	52
Strathroy	Strathroy	10	53
Kaysers	Kerwood	23	53
Grand Valley	Grand Valley	8	55
Merlin	Merlin	5	55
Eldon	Lorneville	22	55
Forest	Forest	15	56
Ayton	Ayton	9	57
Elmvale	Elmvale	15	57
Underwood	Port Elgin	6	57
Lambton	Petrolia	16	57
Macleods	Ilderton	6	57
New Dundee	Petersburg	15	57
Baden	Baden	3	58
Glencoe	Glencoe	7	58
Tiverton	Kincardine	6	58
Exeter	Exeter	8	59
Shamrock	Centralia	4	59
Cedar Springs	Komoka	5	60
Milverton	Milverton	5	60
Winchelsea	Exeter	16	67
Victoria Road	Lindsay	8	75

In 1907, we had only the average temperatures at shipping stations of butter fr eight creameries, the lowest being 41·3 degrees and the highest 61·3 degrees. In 19 as shown above, the lowest average temperature was 47·5 degrees and the highe 73·3 degrees, which is not such a good showing.

The following table shows the temperature of marked packages of dairy but and of creamery butter both at shipping points and at Toronto. The packages th were tested by the inspector at the railway stations were marked by him so that could pick them out and retest them when they were removed from the cars Toronto.

TABLE No. 4.—TEMPERATURES OF ONTARIO BUTTER AT SHIPPING POINTS AND AT TORONTO, SEASON, 1908.

Dairy Butter Only.

Number of cars	7
Number of packages tested at shipping points, marked and retested at Toronto	94
Average temperature at shipping points	63·4 deg.
Average temperature at Toronto	56·9 "
Reduction in temperature	6·5 "

Creamery Butter Only.

Number of cars	7
Number of packages tested at shipping points, marked and retested at Toronto	67
Average temperature at shipping points	54·9 deg.
Average temperature at Toronto	49·9 "
Reduction in temperature	5·0 "

TABLE No. 5.—TEMPERATURES OF ONTARIO BUTTER AT SHIPPING POINTS AND AT MONTREAL, SEASON, 1908.

Dairy Butter Only.

Number of cars	15
Number of packages tested at shipping points, marked and retested at Montreal	113
Average temperature at shipping points	64·8 deg.
Average temperature at Montreal	53·4 "
Reduction in temperature	11·4 "

Creamery Butter Only.

Number of cars	7
Number of packages tested at shipping points, marked and retested at Montreal	49
Average temperature at shipping points	57·7 deg.
Average temperature at Montreal	50·5 "
Reduction in temperature	7·2 "

Table No. 5 gives the temperature of marked packages of Ontario dairy butter and of Ontario creamery butter at Montreal. It will be observed that the dairy butter, taking the average of fifteen cars, was reduced in temperature 11·4 degrees during transit from Western Ontario points to Montreal, which must be regarded as a satisfactory showing and a tribute to the efficiency of the iced cars.

As already mentioned, the travelling inspectors when they test the temperature of butter at railway stations place a special mark on the packages so that these may be picked out and retested at Toronto or Montreal, according to the destination of the butter. In the following table the average temperatures at Montreal of these marked packages are shown for both Ontario and Quebec butter.

TABLE No. 6.—TEMPERATURES OF ONTARIO AND QUEBEC BUTTER AT SHIPPING POINTS AND AT MONTREAL, SEASON 1908.

	No. of cars with marked packages.	No. of marked packages tested at shipping points and at Montreal.	Average temperature at shipping points.	Average temperature at Montreal.	Increase in temperature.	Reduction in temperature.
			Deg.	Deg.	Deg.	Deg.
Ontario via G.T.R.	15	154	60·2	51·8	....	8·4
" " P.M.	1	8	65·6	59·5	.....	6·1
Quebec (north of St. Lawrence) via C.P.R.	10	197	57·1	55·8	....	1·3
Quebec (south of St. Lawrence) via C.P.R.	31	404	50·5	51·3	0·8	.....
Quebec via G.T.R.	15	185	54·4	57·2	2·8	.....
" " I.C.R.	9	130	55·6	56·1	0·5	.....
" " Q.C.R.	2	35	55·2	55·4	.....	0·8
" " C.V.R.	5	52	52·5	54·8	2·3	.....
" " Q.M.&S.	5	69	58·0	56·6	.....	1·4
" " C.N.Q.R.	5	47	54·4	52·8	... .	1·6
" " L.&M.	2	9	54·1	58·5	4·4	.....
Totals	103	1,290				
General Average.	.....	.. ..	54·9	54·4	.....	0·5
Season 1907, general average	.....	.. ..	51·3	50·5	.....	0·8
" 1906, "	.....	.....	52·6	53·2	0·6	.....
" 1905, "	.. ..	.....	54·4	54·5	0·1	.. ..

THE EXPORT BUTTER TRADE.

In the year ended March 31, 1908, the quantity of butter exported amounted to 4,786,954 pounds valued at $1,068,703. In the year ended March 31, 1909, the exports were 6,326,355 pounds, worth $1,521,436. The total receipts at Montreal from May 1, 1908, to the close of navigation amounted to 446,959 packages as compared with 391,099 packages the previous season. In 1908, the exports from Montreal were 93,766 packages and in 1907, 66,896 packages. All the butter exported the past season was carried in cold storage at a suitable temperature and was landed in good condition.

The following table shows the comparative temperatures for the past four years of butter when delivered to the steamers at Montreal and when unloaded at the port of discharge in Great Britain.

TABLE No. 7.

—	No. of Packages Tested.	Average Temperature at Montreal.	Average Temperature at Port of Discharge.	Average Reduction in Temperature by Ships' Refrigerators.
		Deg.	Deg.	Deg.
Montreal to Liverpool—				
Season 1905	843	39·3	24·9	14·4
" 1906	456	39·2	21·4	17·8
" 1907	183	33·7	23·1	10·6
" 1908	86	37·5	25·0	12·5
Montreal to London—				
Season 1905	859	40·2	26·6	13·6
" 1906	527	41·7	20·5	21·2
" 1907	217	36·2	15·3	20·9
" 1908	153	39·6	18·2	21·4
Montreal to Bristol—				
Season 1905	607	36·9	23·9	13·0
" 1906	361	36·9	23·9	13·0
" 1907	186	35·4	22·9	12·5
" 1908	226	35·3	23·5	11·8
Montreal to Glasgow—				
Season 1905	403	35·8	28·7	7·1
" 1906	374	35·0	24·1	10·9
" 1907	183	35·9	19·2	16·7
" 1908	75	35·0	23·9	11·1
Montreal to Manchester—				
Season 1905	87	34·4	30·4	4·0
" 1906	33	41·2	38·8	2·4
" 1907	7	40·9	34·0	6·9
" 1908				

THE EXPORT CHEESE TRADE.

The bulk of the cheese received at Montreal for export during the shipping season arrived in good condition. Between eleven and twelve hundred iced cars were used by the shippers, on which the icing charges to the extent of $5 per car were paid by this department. Not all the cheese, however, received at Montreal during the hot weather was transported in iced cars, although one would imagine that every shipper would be willing to expend the small sum of $5, the cost of two tons of ice, in order to provide against risk of injury to goods worth in the neighbourhood of $3,000. In a good many instances cheese were loaded in refrigerator cars which were not iced and, as a consequence, the warm air which was in the car when loaded and whatever heat had been generated by the goods while in transit, was bottled up without any means of escape. When it is not intended to use ice it is much better to ship in an ordinary box car than in a refrigerator; but we wish to emphasize the fact that during the hot months iced cars should be used whenever it is possible to obtain them.

According to the Board of Trade returns, 1,961,006 boxes of cheese were received at Montreal during the season of navigation; the total exports from that port amounting to 1,791,005 boxes.

Following are the figures showing the quantity and value of cheese exported from Canada in the years ending March 31, 1904 to 1909, inclusive:—

Year ended March 31.	Lbs.	Value.
		$
1904	242,432,366	25,975,998
1905	216,080,606	19,969,363
1906	214,438,960	23,679,419
1907	213,614,643	26,160,856
1908	189,710,463	22,887,237
1909	164,907,139	20,534,666

As the reports of cargo inspectors in Great Britain and the letters from British importers, which are published in this report, refer particularly to the quality and condition of Canadian cheese imported into Great Britain in 1908, I will not go into the question here beyond pointing out the remarkable unanimity with which the importers state that they received no heated cheese last season, or else such a small quantity as to be practically unnoticeable. This is a splendid record in view of the fact that the weather conditions were aggravated during September and October by smoke from the forest fires which detained cheese cargoes in the River St. Lawrence for days at a time, during a period of unusually warm weather. It is difficult to estimate the additional revenue received last year on account of the fine condition in which Canadian cheese were delivered on the other side, but it must have reached a very large sum. In the letters referred to, the principal complaints relate to the shipping of green cheese; short-weights; indistinct marking of weights on boxes; lack of care in boxing cheese, and the use (by Quebec factorymen especially) of inferior boxes. The complaints *re* indistinct marking and the use of boxes which do not fit the cheese crop up year after year, and it seems impossible to eradicate these faults, which no doubt appear trivial to the cheese-maker, but which in the aggregate cause a lot of loss and inconvenience to the trade. To stencil the weights neatly on the boxes entails little extra work at the factory, but it saves a lot of trouble when the cheese are collected at the importer's warehouse in Great Britain. In the same way, if all our cheese were carried in snug fitting boxes, it would reduce breakage by 75 per cent, even with the poor class of boxes now in use. The grievance regarding short-weights (which includes the natural shrinkage) is a much more difficult one to handle, but if resolutely grappled with, I have no doubt that a solution of the difficulty could be obtained.

THE EXPORT APPLE TRADE.

The following table shows the quantity and value of apples shipped in the years ended March 31, 1904, to 1909, inclusive:—

Year ended March 31.	Brls.	Value.
		$
1904	1,577,285	4,529,500
1905	997,188	2,551,474
1906	1,280,789	4,217,701
1907	998,618	2,702,623
1908	1,629,400	4,823,645
1909	1,092,090	2,804,282

CONDITION OF APPLES EXPORTED.

The total shipments through the port of Montreal for the season of 1908 amounted to 325,821 barrels and 22,152 cases, compared with 626,143 barrels and 19,527 cases in 1907. The early apples which went forward during August and the first week of September were landed on the other side in good condition and realized satisfactory prices; but the shipments which reached the Liverpool and Glasgow markets after September 30, were delivered in very poor condition, with the result that the market went to pieces and extremely low prices prevailed. By October 20 the out-of-condition fruit was disposed of and as the apples then arriving were in good condition, the market recovered and good prices were realized during the remainder of the season. Generally speaking, the shipments which were landed in the old country in bad condition had been heated before they reached Montreal. As evidence of this I submit the following statement showing the condition of apples when loaded at

Montreal on eight steamers, viz., the *Ottawa, Virginian, Tunisian, Marina, Athenia, Pretorian, Hesperian* and *Lakonia,* which sailed from Montreal for Liverpool and Glasgow between September 17 and October 3.

	Barrels.
Quantity of apples carried in these eight steamers..	58,564
Lots examined by fruit inspectors represented..	51,477
Approximate number either showing decay or at a temperature of 70 degrees and over..	28,753

Fifty-three per cent of the apples carried by these eight boats was therefore in poor condition when loaded at Montreal, representing on the total quantity carried 32,210 barrels. Estimating the reduction in price obtained in Liverpool and Glasgow on account of the condition of the fruit at $1.50 per barrel, it would mean a net loss on the shipments in question amounting to $48,315.

Extremely hot weather in September and October was responsible for the trouble in 1908 just as it was in 1906, and in both years Ontario apple shippers dropped many thousands of dollars. The greater part of the loss made in these two years could have been prevented if the apples had been placed in cool storage as soon as picked and then carried to the shipping port in iced cars. If no provision is made for cool storage in the districts where the apples are grown, it is useless to expect that we shall be free from disastrous shipping seasons similar to those of 1906 and 1908.

SHIPMENTS FROM HALIFAX.

A cargo inspector was employed at the port of Halifax during the apple shipping season of 1908-9, and I quote the following extracts from his final report:—

'At Halifax the steamship companies do their own handling, taking the apples from the cars, rolling them to the hatchways and hoisting them into the holds in the steamers, six barrels at a time. I found the handling and stowing very satisfactory, seldom having to speak to the men for rough handling. We have had some trouble with large cars, which are usually loaded five barrels high. In letting the barrels down, the top row is sometimes bound to strike very hard on the ends, making the fruit slack in the barrels. I have been in the cars and have assisted in lowering the top tier and find it almost impossible to let the barrels down easily. In my opinion shippers should positively refuse to load these cars more than four barrels high.

'The Dominion Atlantic Railway carries most of the apples from the packing houses to the railway yard in Richmond, the Intercolonial Railway taking them there and placing them alongside the steamers. This work has been done satisfactorily. Up to April 1, the Dominion Atlantic Railway used 2,334 cars to move the apple crop of 1908. There are about fifty cars more in the valley, making a total of 2,384 cars.

'The apples were mostly shipped in ordinary stowage in the steamships, one shipment of 2,123 barrels, 2,060 half barrels and 517 boxes going forward in cold storage on the s.s. *Canada Cape* to South Africa. This was the only shipment of perishable produce from this port in cold storage this season.'

THERMOGRAPHS PLACED AT HALIFAX.

During the season of 1908-9, thermographs were placed in the following steamers:—

Steamer.	Destination.	Date Placed.	No. Placed.
Rappahannock	London	Sept. 12	2
Kanawha	"	" 19	2
Tabasco	"	" 26	2
Shenandoah	"	Oct. 3	2
Almeriana	"	" 13	2
Rappahannock	"	" 24	2
Kanawha	"	Nov. 3	2
Tabasco	"	" 11	2
Shenandoah	"	" 19	2
Almeriana	"	" 27	2
Rappahannock	"	Dec. 3	2
Tabasco	"	" 25	2
Shenandoah	"	Jan. 6	2
London City	Liverpool	" 13	1
Rappahannock	London	" 14	2
Kanawha	"	" 22	1
Corsican	Liverpool	" 23	1
Canada Cape	South Africa	Oct. 6	1
Total			32

Satisfactory temperatures were recorded by these thermographs, showing that these boats have good ordinary ventilation.

SHIPMENTS OF APPLES FROM HALIFAX, BY PORTS, SEASON 1908-9.

Port.	Barrels.	Half Barrels.	Boxes.
London	296,661	319	1,478
Liverpool	150,724	79	1,054
Glasgow	45,986		
St. John's, N'f'd	12,962	69	3
Manchester	10,873		
Bermuda and West Indies	5,129		
South Africa	2,123	2,060	517
New York	1,005		
Total	525,463	2,527	3,052

In addition to the foregoing about 50,000 barrels of Nova Scotian apples were purchased by the cold storage company at St. John and shipped from that port during the winter months. About 10,000 barrels were also shipped to the United States via Yarmouth. If we add to these figures the apples sold on the local markets, extending from Prince Edward Island to Montreal, estimated at about 90,000 barrels, it brings the total crop placed on the markets to the handsome figure of 675,463 barrels.

SHIPMENTS FROM ST. JOHN, N.B.

During the season from November, 1908, to March, 1909, the total shipments of apples through the port of St. John, N.B., amounted to 76,906 barrels and 3,253 boxes. Of this quantity 14,030 barrels and 1,224 boxes were forwarded in cold storage.

ACKNOWLEDGMENTS.

In concluding this report I wish to express my appreciation of the manner in which the inspectors, employed under the direction of this division during the past year, have performed their duties.

I have the honour to be, sir,

Your obedient servant,

W. W. MOORE,

Chief, Markets Division.

REPORT

OF THE

DAIRY AND COLD STORAGE COMMISSIONER

FOR THE

FISCAL YEAR ENDING MARCH 31,

1909.

PART IV.—FRUIT DIVISION.

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PART IV.—FRUIT DIVISION.

J. A. Ruddick, Esq.,
Commissioner of Dairying and Cold Storage,
Ottawa.

Sir,—I have the honour to submit a report of the work of the Fruit Division for the year ending March 31, 1909, under the following heads:—

(1) The enforcement of the Inspection and Sale Act, Part IX.
(2) The publication of the Fruit Crop Report.
(3) The fruit season of 1908 in Canada.
(4) Evaporated Apples.
(5) South African Trade.
(6) Fruit for the Franco-British Exhibition.
(7) Early Apple and Tender Fruit Trade.
(8) Imported Fruit.
(9) The Northwest market for early apples.
(10) The Quality of Winter Apples shipped to the Northwest.
(11) Fruit Meetings.
(12) Miscellaneous Work.

THE ENFORCEMENT OF THE INSPECTION AND SALE ACT, PART IX.

THE STAFF OF INSPECTORS.

There were few changes in the personnel of the Dominion fruit inspectors during the year. Mr. W. J. Furminger, of St. Catharines, was appointed to work more particularly in southern Ontario. Mr. W. J. Bryan, of Lucknow, was appointed to work in western Ontario, and Mr. Earl Moore, of Oshawa, was appointed to work on the docks at Montreal during the shipping season, and, later, in the warehouses on the north shore of Lake Ontario. Owing to the death of Mr. J. J. Philp, Mr. W. W. Brown was sent to Winnipeg, and remained there during the season. The staff consists of nine permanent inspectors and twelve temporary inspectors.

THE WORK OF THE SEASON.

No particular difficulties presented themselves this season. Speaking generally, the apples were packed much better than for the season of 1907-8, and, consequently, fewer violations of the Inspection and Sale Act were discovered. Merchants in Great Britain have, almost without exception, expressed their satisfaction with the pack this season. The Northwest trade was not so satisfactory, although there has been some improvement. The fact remains, however, that many shippers are not nearly so careful with reference to the grading of fruit for the Northwest trade as they are for the export trade. A large number of prosecutions originated in the examinations which were made by the inspectors travelling in Manitoba, Saskatchewan and Alberta.

INSPECTION STATISTICS.

A larger percentage of inspectors were detailed this year to work in orchards and at the point of shipment. This, while quite satisfactory in some respects, does

not give an opportunity for inspecting as many packages as if the inspectors were placed where the fruit is concentrated in the large markets and at the export points. In order to show the scope of the work more fully, the varieties of fruit have been divided in the following table, and the statistics given for each variety. It is to be noted that the apples, both in boxes and barrels, and the pears, were very largely for export, the other varieties of fruit practically all for domestic consumption.

Variety.	No. of lots inspected.	No. of pkgs. in lots inspected.	No. of pkgs. inspected.
Apples (bbls)	5,940	682,657	42,223
" (boxes)	248	100,729	2,701
Pears	88	54,150	7,924
Peaches	91	140,976	16,005
Plums	54	16,505	1,474
Tomatoes	53	11,381	779
Early fruits	863	1,184,651	154,874
Total	7,337	2,191,049	225,980

PROSECUTIONS.

An endeavour was made this year to make the prosecutions as promptly as possible. This entailed the taking away of some of the inspectors from the work of inspection for part of the shipping season. The total number of convictions this season has been eighty. The names and addresses of the persons convicted under the Inspection and Sale Act, Part IX., for the season 1908-9, are given below.

Name.	Address.
Arthur Alyea	Brighton, Ont.
Orbey Alyea	Trenton, Ont.
J. H. Barry	Meaford, Ont.
J. A. and E. Brown	Port Hope, Ont.
J. A. and E. Brown	Port Hope, Ont. (second conviction).
Jas. Caesar	Langside, Ont.
Duncan Cameron	Ripley, Ont.
D. Cantelon	Clinton, Ont.
B. Churchill	Clinton, Ont.
Coyle and Floyd	Colborne, Ont.
Coyle and Floyd	Colborne, Ont. (second conviction)
B. H. Coyle	Colborne, Ont.
John Coyle	Colborne, Ont.
John Coyle	Colborne, Ont. (second conviction).
John Coyle	Colborne, Ont. (third conviction).
John Denholm	Blyth, Ont.
C. R. Denike	Green Point, Ont.
J. P. Dunn	Streetsville, Ont.
Robert Elliott	Goderich, Ont.
Robert Elliott	Goderich, Ont. (second conviction).
R. R. Elliott	Goderich, Ont.
R. R. Elliott	Goderich, Ont. (second conviction).
W. A. Fraser	Trenton, Ont.
G. W. French	Colborne, Ont.
G. W. French	Colborne, Ont. (second conviction).
Angus Galbraith	Parkhill, Ont.
S. P. Herrington	Brighton, Ont.
J. M. Hodgin	South Bay, Ont.
A. E. Hoover	Selkirk, Ont.
John Joynt	Lucknow, Ont.
John Joynt	Lucknow, Ont. (second conviction).
Wm. Little	Teeswater, Ont.
H. McQuillan	Lucknow, Ont.
H. McQuillan	Lucknow, Ont. (second conviction).
Geo. Miles	New Durham, Ont.

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Name.	Address.
T. Mirehouse..	Whitechurch, Ont.
F. G. Moffat..	Langside, Ont.
R. G. Monet..	Port Perry, Ont.
F. F. Snelgrove..	Brighton, Ont.
Jas. Steep..	Clinton, Ont.
I. Teeple..	Ancaster, Ont. (prosecuted by A. C. Caldwell, Dundas).
Arthur Terrill..	Wooler, Ont.
Robert Thompson..	Brussels, Ont.
Frank White..	Bloomsburg, Ont.
John Wilson..	Ingersoll, Ont.
R. A. Webber..	Hickson, Ont.
Chas. Watts..	Thamesville, Ont.
J. R. Clogg & Co..	Montreal, P.Q.
A. Lortie..	Verte Vallée, P.Q.
L. A. Armstrong..	Falmouth, N.S.
Aylesford Fruit & Produce Co..	Aylesford, N.S.
G. W. Beckwith..	Sheffield Mills, N.S.
J. W. Bigelow..	Wolfville, N.S.
F. C. Bill..	Northville, N.S.
Frank Cogswell..	Lakeville, N.S.
E. S. Condon..	Grafton, N.S.
A Curry..	Falmouth, N.S.
C. M. & W. S. Dewitt..	Blomidon, N.S.
A. H. Dickie..	Upper Canard, N.S.
F. W. Dickie..	Canard, N.S.
H. O. Duncanson..	Falmouth, N.S.
E. J. Ells..	Sheffield Mills, N.S.
P. W. Ells..	Sheffield Mills, N.S.
F. L. Gertridge	Gasperaux, N.S.
V. Greene..	Blomidon, N.S.
R. E. Harris & Son..	Wolfville, N.S.
R. E. Harris & Son..	Wolfville, N.S. (second conviction).
A. J. Kinsman..	Centerville, N.S.
M. Lockwood..	Canning, N.S.
C. McLellan..	Avon Valley, N.S.
H. Oder..	Kentville, N.S.
C. A. Patriquin..	Wolfville, N.S.
Robt. W. Reid..	Centerville, N.S.
C. E. Sheffield..	Upper Dyke, N.S.
A. E. Skerry..	Billtown, N.S.
A. W. Slocomb..	Mt. Handley, N.S.
E. W. Trenholm..	Grand Pré, N.S.
S. Warner..	Prince Albert, NS.
M. Whitman..	Brooklyn, N.S.
B. Woodworth..	Church St., N.S.

AMENDMENTS TO THE ACT.

The amendments to the Inspection and Sale Act, Part IX., which were passed by parliament during the session of 1907-8 have been an undoubted improvement. These changes consisted in a clearer definition of the No. 2 grade, a definition of cull fruit and a provision for imposing heavier penalties.

NO. 2 GRADE.

In the practical working out of this grade, conditions arose which had not been foreseen by those who framed the original definition. According to that definition, a barrel of No. 2 apples must contain specimens not less than nearly medium in size and must be eighty per cent free from wormholes and other defects that cause material waste. The part of the definition which was found weak was that referring to the twenty per cent of the fruit in the package which might consist of absolute trash, provided it met the requirementst of the clause designating size. Large percentages of inferior fruit were deliberately included by unscrupulous packers, who made no attempt to follow the spirit of the law, but intentionally put in the limit of defects as was permitted by the 20 per cent clause. It was not uncommon to find one-fifth of the fruit in No. 2 barrels nothing but 'culls.' To make matters

worse, these culls were often diseased and contaminated the good fruit in the barrel, so that after a short time the whole was worthless. This was manifestly unfair to those who followed the intention of the definition and packed only merchantable fruit. This weakness was removed by inserting the words 'includes no culls' in the definition. Clause (iii) of subsection (*b*), section 321, now reads:—

'No 2 quality, unless such fruit *includes no culls* and consists of specimens of not less than nearly medium size for the variety, and not less than eighty per cent free from worm-holes and such other defects as cause material waste, and properly packed.'

DEFINITION OF CULLS.

In order to fully establish the practical working of the amended definition of the No. 2 grade 'culls' were defined as fruit 'that is either very small for the variety, or immature, or the skin of which is broken so as to expose the tissue beneath, or that is so injured by insects, fungi, abnormal growths, or other causes, as to render it unmerchantable.'

EFFECT ON THE NO. 2 GRADE.

If packages of fruit bearing the grade mark 'No. 2' are offered for sale containing a percentage of culls deliberately included, which when mixed through the package lower the quality and detract from the appearance and serviceableness of the package, the packer responsible is now liable to a fine. The result is that the No. 2 grade is now good, serviceable stock, suitable for all culinary purposes and quite acceptable for ordinary family use to eat out of hand. Every specimen may be defective, but none to such an extent as to cause material waste. This grade is now taken freely in the Northwest and in the British markets, but only when it is strictly up to grade. The No. 2 grade will include 60 to 75 per cent of the average Canadian stock after culls have been rejected. Properly sprayed orchards do not show more than 10 or 15 per cent of No. 2 fruit, and often less.

PENALTIES.

The original penalties, which ranged from a minimum of 25 cents to a maximum of $1, were found to be an insufficient deterrent. The amended section referring to penalties now reads:—

'328. Every person who, by himself or through the agency of any other person, violates any of the provisions of section 320 and 321 of this Act, shall be liable, for the first offence, to a fine not exceeding $25 and not less than $10; for the second offence, to a fine not exceeding $50 and not less than $25; and for the third and each subsequent offence, to a fine not exceeding $200 and not less than $50, together, in all cases, with the costs of prosecution; and in default of payment of such fine and costs shall be liable to imprisonment, with or without hard labour, for a term not exceeding one month, unless such fine and costs, and the costs of enforcing them, are sooner paid.

2. Whenever any such violation is with respect to a lot or shipment consisting of fifty or more closed packages, there may be imposed, in addition to any penalty provided by this section, for the first offence twenty-five cents, for the second offence fifty cents, and for the third and each subsequent offence one dollar, for each closed package in excess of fifty with respect to which such violation is committed.'

Deliberate offenders of these regulations will now have to face a heavy fine for every violation. Convictions will be counted from year to year. On another page in this report will be found a list of packers who have been fined this season. In some cases two and in one case three convictions have been registered. Should any of these packers be convicted next year under the Act, they will, of course, be subject

to the penalties for a second or third offence. Consequently none on this list will be fined less than $25, and all who have been fined twice this year will be subject to a fine of not less than $50 next year.

ENFORCEMENT OF THE ACT WITH REFERENCE TO PACKAGES.

There was little or no complaint with reference to barrels and boxes. The law is now generally observed, and Canada is in the happy position of having a uniform system of fruit packages from the Atlantic to the Pacific. Each year a warning with reference to the requirements of the Act is issued to the manufacturers. The result is that, with the exception of a few strawberry boxes, so far as is known, there were no violations of the Act during the past season. The Nova Scotian apple growers continue to use the minimum size of barrel, while the Ontario and Quebec shippers, for the most part, use a size six or eight quarts larger. There is a growing tendency on the part of the Ontario shippers to reduce the size of the barrel to the minimum.

FINE DISTINCTIONS NOT RECOGNIZED IN GRADE DEFINITIONS.

The grades, 1 and 2, admit of a somewhat wide difference in quality. In size a No. 1 fruit can vary from medium to large and very large; in colour, from fair to excellent and extra good. These differences alone would give several classes of fruit, often, indeed usually, all present in a barrel of No. 1's. The value will vary just as one class or the other predominates and also with the wants of the customer.

PRICES VARY WITH CONDITION OF FRUIT.

This will account in part for the difference between the prices of different lots of grade No. 1; but the greatest difference is in the condition of the fruit. One lot will arrive sound and perfect; another originally as good, of the same grade, will arrive in a poor condition, heated, wilted, and perhaps showing signs of incipient decay. Only an examination of each lot can determine the condition and class.

FURTHER DEFINITIONS MAY BE DESIRABLE FOR BOX PACKING.

When our fruit packers become more skilled in grading and learn to put only apples of the same size, colour and quality in a package, we shall then have to distinguish between different classes even in Grade No. 1.

One of the values of box packing is its incentive to greater discrimination in grading. The best box packers grade so that every apple in a box is the same in size, colour, quality and condition, and these different qualities are all marked on the box. The size is marked by giving the number of tiers and the number of apples in the package. The colour is marked by an initial, as 'R' for red and 'L' for light. The general grade is indicated by Fancy, No. 1 and No. 2, as set forth in the Inspection and Sale Act. The definitions of the Act are broad because they are applied over the whole Dominion and are binding on the unskilled packer as well as the trained expert. To have made fine distinctions in grading would have been a great handicap to the larger number of apple growers who are not experts in packing.

IMPROVEMENT DEPENDS ON EDUCATION RATHER THAN LEGISLATION.

The Inspection and Sale Act has done a great work in bringing the Canadian apple trade to its present enviable position; but further advances will depend largely on the education of the individual grower and a change in the system of selling the fruit. This can hardly be a subject for legislation, except indirectly. The Inspection and Sale Act cannot be made more stringent at the present time, though the enforcement of it as it now stands should be as stringent as the conditions admit.

RECOMMENDATIONS TO THE PACKER.

Of the changes that can be recommended to the individual grower, I know of none that would tend to improve the grading so much as using boxes instead of barrels for No. 1 fruit. A grower cannot use boxes long before he discovers that only one class of fruit should go into a particular package, and he soon discovers also that several classes could be made all in grade No. 1. For instance, all apples from 4½ tier to 2½ would be No. 1 in point of size; but each size would go in a separate package, marked so as to show the number of apples in the box. This alone would make four or five classes of apples all No. 1. A distinction would be made also in colour so as to make a further discrimination in class No. 1. It will be seen how crude is the present system of barrel packing, and why different samples of No. 1, all in equally good condition, may command widely different prices.

MORE BOXES ARE BEING USED.

A reference to the figures showing the quantity of fruit exported from Montreal, indicates that the number of boxes is increasing relatively. It is not too much to expect that ultimately a great part of No. 1 apples, though not all, will be shipped in boxes.

ITINERANT APPLE BUYERS WILL NOT USE BOXES.

This is not likely to come about so long as the present system of itinerant buyers is continued. It is imposible for them to handle both boxes and barrels, from the mere inconvenience of having two kinds of packages. They cannot secure and keep labour sufficiently skilled to pack boxes. And more important than all, they cannot secure sufficient control over the same kinds and varieties to obtain a reputation that will secure the advanced price that the greater skill, care and quality would demand. Box-packing, therefore, is not likely to be practised except by co-operative societies, and, therefore, for this and other reasons, improvement in grading and packing and in the actual growing of fruit is likely to go hand in hand with the organization of these societies.

FRUIT CROP REPORTS.

The fruit crop reports were continued during the year and the usual appreciation of them was expressed by the fruit growers. The number of correspondents was somewhat increased, and a large number of those who had not answered promptly were cut off the list. Still further efforts will be made to balance the number of correspondents with the amount of fruit being grown in each district, so as to render the summaries as accurate as possible. The system of reporting the fruit crop by districts receives the approbation of fruit men generally. It enables those interested, both growers and buyers, to estimate the quantity of fruit of the same kind and such as is grown under similar conditions, and so forms a much more trustworthy guide, both to the buyer and to the seller, than if the reports were made for whole provinces or large areas only.

COUNTY REPORTS.

Owing to our office arrangements, the Fruit Division is able to report without difficulty upon any particular county as well as upon the districts. This is a feature that is of very great assistance to the buyers in enabling them to locate fruit. It is an equal advantage, of course, to the growers.

SESSIONAL PAPER No. 15a

THE FRUIT SEASON OF 1908 IN CANADA.

As a fruit season, 1908 will stand out as much above the average. The crops of the various fruits, all things considered, were good. Market conditions were favourable and, notwithstanding certain drawbacks, there were no great impediments in reaching the consumer.

WEATHER CONDITIONS.

The weather conditions were, upon the whole, favourable. The fruit trees of all kinds came through the winter of 1907-8 with little or no injury. Perhaps the only losses for which the weather was responsible were in the storehouses in Nova Scotia, as the result of the excessive moisture and high temperature. Rots, moulds and fungous diseases generally developed abnormally and are accountable for a serious lowering in the reputation of the Nova Scotia fruit in the British markets.

NO WINTER KILLING, 1907-8.

No killing back was reported, and the injuries from mice and rabbits were much below the average. The spring was cool, but not cold. Bloom was, perhaps, a week later than usual, but the warm humid weather the middle of May caused a very rapid development of leaf and bloom, so that vegetation showed no signs of a late spring after growth had well started.

SLIGHTLY DRY FOR SMALL FRUITS.

The conditions for small fruits were quite favourable throughout May, but during the early part of June dry weather set in in eastern Canada, which shortened the crop somewhat, especially in Ontario. About June 20, local showers improved the situation.

STORMS.

There were a few serious storms that did some damage, especially one occuring on June 19, in the neighbourhood of St. Catharines. Light frosts were reported over a large area in Ontario on the 15th of the month, but no damage was done to fruit. Conditions continued favourable in July, though the first part of the month was somewhat dry.

SEPTEMBER AND OCTOBER TOO WARM FOR APPLES.

The June 'drop' was somewhat heavier than normal, and small fruits were shortened somewhat. The dry hot weather perhaps injured the valley regions of British Columbia slightly. The temperature was especially high for August, and the rainfall quite sufficient for good growth and the distribution very even. In southern Ontario the hot, humid atmosphere developed rot in early peaches, but otherwise did no serious damage, except that the conditions were favourable for the development of fungous diseases, which up to this time were scarcely perceptible. The growth of fungus was checked by the dry weather of September. Indeed, the most unfavourable weather of the season occurred during the month of September and the early part of October. The excessively high temperature ripened all fruits very rapidly, so as to force stock on the local markets faster than it could be consumed. The keeping qualities of tree fruits were seriously affected by rapid growth and over-ripening, and there were serious losses in the latter part of September and the first part of October to shippers of early apples, pears and peaches. Later conditions improved materially.

PINK ROT VERY PREVALENT.

Fungous diseases, particularly pink rot, along with the excessive heat, seriously damaged nearly all early shipments, both to the Northwest and for export. The latter part of October and November were ideal months for harvesting and shipping fruits.

Shipments to the Northwest were larger than in any previous year, but the grave criticisms that were made were traceable to some extent to the unfavourable weather during September and October.

WINTER APPLES STORED.

Less than the usual quantity of apples were stored in the warehouses of Ontario. All apples suitable for winter trade were stored both in Ontario and Nova Scotia. The amount stored in Ontario was much less than usual, on account of the short crop of winter apples. But the weather during the winter was quite favourable for shipments, so that few losses are reported from freezing in transit or from other causes. The Nova Scotian storehouses were also fortunate and very few losses have been reported as the result of weather conditions.

THE APPLE CROP.

The apple still continues to be the largest feature of the Canadian fruit trade. Nova Scotia harvested the largest crop in its history. There were exported through Halifax 527,925 barrels of apples, all of which was the product of Nova Scotia. Taking the local consumption and the quantities supplied to the domestic markets, the total crop must have reached about six hundred thousand barrels.

EXPORTS FROM ST. JOHN VALLEY, N.B.

The St. John Valley exports a small quantity of apples, principally three varieties, the Duchess or Newbrunswicker, the Alexander and the Bellflower (Bishop Pippin). These grow here to perfection, and the trade might be almost indefinitely extended. The Duchess grow much firmer than in the other provinces, and are shipped quite successfully to Great Britain in barrels. They are such excellent apples that they should be shipped in boxes, and would yield a splendid profit.

This year there was also a quantity of Alexanders exported to Boston. This is likely to be an increasing trade up to the limits of the capacity of the district to produce this variety. The freight and duty amounts to about 85 cents per barrel, and the price realized in Boston last year was $5 per barrel. This leaves a very handsome profit, exceeding even that which could be reasonably expected on winter fruit from Nova Scotia or Ontario.

The crop in Quebec of Fameuse and McIntosh Red was rather short.

WINTER APPLES SHORT IN ONTARIO.

In Ontario the total crop was about an average one, but was not evenly distributed as to season, the heavier crop being the early and fall apples, leaving the winter apples considerably below an average crop. The aggregate of the crop, however, was fairly large, owing to the number of new orchards of winter apples coming into bearing.

PRICES AND PROFITS.

Perhaps the most unfortunate feature from the producer's standpoint, was the abundant crop of early fruit which, coming as it does in competition with other fruits and in connection with the warm weather, yielded very low prices and naturally affected the price of winter apples, which were sold by the producers in the early part of the season much lower than the aggregate of the crop would have warranted. With the exception of the apple dealers who dealt in Southern Ontario apples, few dealers have lost money even on early stock, and those that had invested in winter stock had the satisfaction of receiving the highest prices that have been paid for a number of years. The producers, however, got a fair price for their fruit. The

dealers made more than ordinary profits and the consumers evidently wanted more fruit; so that the season can be considered a very favourable one.

Apples were exported during this season to twenty-three different countries, though Great Britain is by far the largest consumer, Canada supplying about 60 per cent of all the apples imported there.

PEARS.

The pear crop was somewhat unevenly distributed. The largest number of commercial pear orchards are to be found in southern Ontario. Here the crop was large and fairly clean, and the season was favourable in almost every respect, though the fruit was perhaps slightly undersized. British Columbia harvested a medium crop; but in all other fruit sections the crop was particularly light. This did not affect market conditions materially. The prices were not high, but yet with the extra large crop the returns were exceedingly satisfactory. In other districts the crop was relied upon for home use only, and, therefore, the fact that there was not the usual surplus for sale, was not particularly noticeable.

PLUMS.

The plum crop was not a large one, and prices were good throughout the season, but not particularly high.

PEACHES.

The peach crop was excellent. The early varieties bore very heavily. This had the tendency of lowering prices, as the early varieties are not in demand except for dessert purposes. As the St. Johns came in, prices improved, but the crop was only medium of this variety, and very light of the Early Crawford type. The Elberta, Smock and similar varieties were a good crop, and prices were fairly high. The canning factories offered 3 cents per pound for Smocks. Owing to the excellent weather conditions for the late peaches, the harvesting and shipping were done with very little loss.

GRAPES.

Grapes as usual were an excellent crop. They were the only fruit of which there appeared to be a slight surplus and where prices were somewhat below normal. This can be accounted for in part by the action of the wineries, which were not in a position to buy the usual quantities. As about one-third of the crop of grapes is used for wine, this naturally threw an abnormal quantity of grapes on the markets, with the natural result of lowering the prices. This was not an altogether unmixed evil. The grapes were an excellent crop, and the season was particularly favourable for ripening them to perfection and, no doubt, these grapes, of better quality than usual, at comparatively low prices, found their way into many markets that will be open for large quantities another year.

SMALL FRUITS.

Small fruits were all somewhat more than a medium crop and prices were good, both at the canning factories and on the general market. Cranberries and blueberries formed a larger feature of the fruit trade than usual this year. The partial shortage of cranberries in the United States made it possible to export Canadian berries, and the season favoured picking a full crop, so that there was much encouragement given to the cranberry growers of the Dominion, a profitable line of fruit growing that might be followed to a much greater extent than it is. The blueberries of Nova Scotia, New Brunswick and Quebec are commanding attention and are now not only offered freely on the markets of our large cities, but are being canned in large quantities.

Many large sections of the maritime provinces and Quebec that formerly yielded nothing, are now furnishing a large revenue to those who appreciate the value of blueberries.

INSECT AND FUNGOUS PESTS OF THE YEAR.

The Codling Moth and the Apple Scab still continue to be the greatest insect pests. These were not more prevalent than usual this year, and nothing new has been developed in the mode of combating them. The standard remedy for both is the poisoned Bordeaux mixture. If this is carefully applied four times during the season, 90 per cent of the fruit will be free from infestation. Careful records have been made of the cost of spraying for the purpose of determining the profits. The cost, of course, depends upon the size of the trees, but with ordinary full-grown trees of the Baldwin type, spraying should not cost more than five cents per tree for each application, or twenty cents per tree during the season. This would make an average cost of ten cents per barrel of fruit one season with another. On an average crop of one acre, the cost of spraying would probably be about $12 or $15, certainly not more. The gain by the improvement of the grade of fruit and in the quantity of saleable fruit would be certainly not less than $25 or $30, and in all probability it would be much more than this.

It can thus be readily seen that even on a very small orchard, the cost of an outfit, say $25, would be returned many times the first year and the outfit would still be serviceable for many years more. Spraying is one of the most profitable operations on the farm, and is neither difficult nor particularly expensive. If the spraying were done just for the Codling Moth and Apple Scab alone, nine-tenths of all other insect and fungous pests would be killed at the same time. It does not, therefore, require a very intimate knowledge of insect and fungous diseases to be able to combat them quite successfully.

While it is desirable that every operation on the farm should be followed intelligently, nevertheless mechanical rules for spraying can be given that will enable an orchardist to spray successfully even though he knows little or nothing of the life history and habits of the enemies he is combating. For these two pests (Codling Moth and Apple Scab) the best rule is to spray as soon as the buds open in the spring, with the poisoned Bordeaux mixture. Spray again, if possible, just before the blossoms open. If any spraying is to be missed, this is the one. Make at least one spraying after the leaves are out before the blossom is open. Spraying should be done immediately after the blossoms have fallen. This should be done very promptly, before the Calyx lobes close, so as to cover the calyx tube. This takes place usually in five or six days after the petals have fallen. The next spraying should be given ten days or two weeks later. Very great advantage is obtained from spraying quite late in the season, especially with the tender varieties of apples, such as the Snow and McIntosh Red, if the weather happens to be somewhat wet in July or August.

OTHER INSECT PESTS.

The work of the Curculio is everywhere apparent to a greater or less extent. This insect is identical or closely allied with the plum Curculio, and, like the plum Curculio, can be combated by spraying with the poisoned Bordeaux mixture early in the season, as it feeds in part upon the leaves of the tree. The injury done by the Curculio consists in cutting the surface either for the purpose of feeding or egg-laying. These wounds frequently cause the apple to be misshapen, or they furnish the means whereby fungous spores enter the tissue of the apple, and thus reduce many fruits to the condition of culls that might otherwise be first-class. No special attention need be given this insect if the spraying recommended for the Codling Moth and Apple Scab is attended to, though it is worth while to note that in the case of the

Curculio, as with many other insects, there is less difficulty when the ground is thoroughly cultivated than when it is left in sod.

THE CANKER WORM.

The Canker Worm has been very prevalent in Nova Scotian orchards for two or three years, and is sporadic in Ontario. This insect is destroyed by the first spraying, recommended for the Codling Moth and scab, but the poisoned Bordeaux mixture must be applied very early in the season. If it is left until the insect grows to any extent, the mixture must be stronger in poisoned material than is safe to apply to the leaves of the tree. Winding the trunks of the trees with a bandage of sticky material, that catches the wingless female as she attempts to pass up the tree for egg laying, is of great assistance.

CIGAR CASE BEARER AND BUD MOTH.

The Cigar Case Bearer and Bud Moth are two comparatively new insects to many fruit growers. They are particularly troublesome in young orchards. In fact, many fruit growers made their first acquaintance with these insects through the specimens discovered on their new plantations. The insects are readily distributed through nursery stock. The work of both insects is somewhat insidious, and quite frequently the careless fruit grower does not know why the trees look so unhealthy. The Bud Moth commences its work very early in the season, and usually destroys many terminal buds. Its presence is indicated by the centre being eaten out of the buds and by the young shoots and terminal leaves being rolled and fastened together, including the shrivelled and brown leaves that are dying.

BLISTER MITE.

The leaf Blister Mite was quite prevalent on the apple foliage in Ontario this season, especially in the fruit belt along the north shore of Lake Ontario.

The Mite hibernates under the bud scales during the winter, which it leaves in the spring to burrow into the skin of the new leaves in order to feed upon its juices and soft tissues. Raised blister-like structures called galls are produced on the lower surface of the leaves through the irritation set up by the work of the insect within the leaf. Entomologists, in studying the life history of the Mite, find that the young Mites, which hatch from eggs laid within the gall covering, pass out to work on other leaves. Thus it is seen that this pest can spread very rapidly. Under favourable conditions the Mite has been proven to infest the foliage of an orchard so that hardly a leaf can be found which is entirely free from its work. The writer saw an orchard in north eastern New York State last fall, which was so badly infested that the foliage presented a severely scorched appearance. There was not a leaf in the whole orchard which was not covered with the dark brown and black pimple-like galls. The trees in this orchard were very much neglected and furnished an excellent example of the rapidity with which the Mite will spread under such conditions.

Sulphur sprays have been found to give the best results in the control of the Mite. Applications of the lime-sulphur wash may be made in the fall after the majority of leaves have fallen, or in the spring until the buds commence to break and to show the tips of the young leaves. Treatment should not be made later than this as the sulphur sprays are very destructive to the tender foliage, and the mites may have gained entrance into the leaves where they would be beyond the reach of the mixtures.

FUNGOUS DISEASES.

Fungus diseases were on the whole somewhat less troublesome than usual.

The Peach Leaf Curl did considerable damage to the foliage in the commercial peach sections of Ontario. The Elberta and Triumph varieties seemed to be affected most.

Spraying in February and March with bluestone or the lime-sulphur mixture will keep this disease in check.

Orange Rust was noticed on blackberries in some localities in Ontario. The canes showing this disease should be cut out and burned.

Powdery Mildew was destructive to gooseberries particularly in Nova Scotia and British Columbia.

The development of Apple Scab was not quite so marked in Ontario on apples generally as it was the previous season. The Greening and Fameuse varieties, however, were very spotted where they came from orchards which were not carefully sprayed.

BROWN TAIL MOTH.

The Brown Tail Moth has not been entirely stamped out of Nova Scotia. There is also a possibility of it being imported on nursery stock from the United States or Europe. The general appearance and habits of this insect, together with the methods of controlling it, should be noted by every grower, so that in case it should appear in uninfested localities it may be recognized and checked before it obtains a foothold or does serious damage.

The Moth is pure white except at the tip end of its body, which is brown in both sexes. The female has a tuft of brown hair at the tip of the abdomen. There is only one brood in the year.

In July the eggs are laid in masses of about three hundred on the lower surface of the leaves. These egg masses are brown in colour, due to a thick covering of golden brown hairs from the tip of the body of the moth. When the young caterpillars have hatched, they feed for some time on the upper surface of the leaves. As winter approaches the small caterpillars crawl to the tips of the branches and fasten a few leaves securely together with silk. They then remain dormant within these 'tents' throughout the winter. The winter webs are from one to four inches in length and from one to one and a half inches thick.

About the time the buds are bursting in the spring the caterpillars emerge and commence their destructive work. The caterpillar is dark, covered with rusty hairs, and there are two reddish-yellow cushionlike tubercles on segments of the abdomen which the insect raises and lowers at pleasure.

The collection of the winter nests is the best means of controlling the insect. These must be carefully handled in order to avoid the rash which is produced when the 'stinging' hairs attached come in contact with the skin. Collecting must be done before the buds burst, after which the trees should be sprayed with some poisonous arsenical mixture for the destruction of the caterpillars which may have been missed.

Mr. G. H. Vroom, Dominion fruit inspector in Nova Scotia, has been employed several weeks each year since the discovery of the Moth in Nova Scotia in the effort to destroy this pest.

EVAPORATED APPLES.

THE EVAPORATOR AND HIGH GRADING.

In the enforcement of the Fruit Marks Act our chief dependence is placed upon the detection of fraudulent marking and packing, by the Dominion fruit inspectors. Nevertheless, it has been noted that certain methods of doing business and certain practices, assist very greatly in improving the grading and marking of fruit and bringing the standard up to that required by the Fruit Marks Act. The establishment of co-operative associations has made a complete revolution within the sphere of each society's influence. Only less beneficial is the establishment of co-operative evaporators.

The Ontario Fruit, Flower and Honey Show, 1908.

THE BEST EVAPORATING STOCK NOT NECESSARILY THE BEST SHIPPING STOCK.

Evaporated fruit furnishes an outlet for apples that the owners feel are too good to be wasted, and yet do not make good shipping stock. Such fruit should not be classed as waste fruit. It is not such. It may be the very best fruit for evaporating purposes, but not suitable for shipping; as, for instance, in the case of a fully matured apple which is just in the proper condition for evaporating, and may have no defects whatever for a shipping fruit except that it is overmatured, and, therefore, will not reach the consumer in good condition. Of course, there are grades of fruit not so good for evaporating, but which make excellent stock, such as fruit slightly affected with scab and those having the skin slightly broken. The temptation is very strong when there is no other outlet for these apples, to place them with shipping stock and to send them forward. The usual result is that decay sets in, which, in addition to contaminating the fruit, may cause the barrel to go slack, injuring the contents severely by barrel bruising. Quite frequently five per cent of this slightly defective fruit, that looks sound and quite suitable for shipping, except to the experienced packer, is the cause of serious depreciation in a barrel otherwise excellent. Where this slightly defective fruit can be disposed of regularly and for its full value to evaporators, there is little or no temptation to include it in shipping stock. The price that can be realized through co-operative evaporators is only slightly less than the price realized as green fruit. Hence, in all such cases, only the best grades are shipped and the lower grades are consigned to the evaporator to make a grade of evaporated stock that meets every requirement of a high class market.

VALUE AND PRICES.

Independent evaporators paid last year from 25 to 35 cents per hundred pounds for green apples. The co-operative evaporators realized nearly 50 cents. The market for evaporated apples was fairly good, first class stock bringing from 6 to 6½ cents f.o.b. at the factory.

The following table gives a comparison between the exports of evaporated apples and green apples from Canada and the United States respectively:—

Year.	Country.	Evaporated Apples.	Green Apples
		Lbs.	Brls.
1908..	Canada	6,939,083	1,629,130.
1908..	United States.	35,054,763	1,052,999

It will be noted that in proportion to the quantity of apples exported green, Canada exports comparatively little evaporated fruit, the indication being that this branch of the industry is not fully developed. No doubt a very large revenue that might be made from Canadian orchards is sacrificed in apples that are left in the orchard after the best grades have been taken out.

SOUTH AFRICAN TRADE.

As the result of the establishment of a steamship line between Canada and South Africa, a small trade in apples has sprung up between the two countries. For two or three years these shipments have been made but not with complete success.

THE SOUTH AFRICA FRUIT PEST LAW.

The requirements with reference to the admission of fruit in South Africa are very stringent. The apple scab and codling moth are regarded as particularly objec-

tionable. Every year, at least, a part of the cargo going from Canada has been refused admittance on account of fungus or insect pests. This has resulted in severe losses to the shippers and a great discouragement to the trade.

VARIETIES SENT, 1908.

During the season of 1908, about two thousand barrels of apples were sent to South Africa. One-third of these went from Nova Scotia, the remainder from Ontario. There was little complaint with reference to the Ontario apples. The four chief varieties were Northern Spy, Golden Russet, Baldwin and Ben Davis. There were a few Ganos, Canada Red, Stark and Cooper's Market. These varieties are quite acceptable and when grown clean find a ready sale in South Africa. The varieties going from Nova Scotia, were Golden Russet, Nompareil and Ben Davis. Unfortunately, these were so infested with scab (Fusicladium) that they were refused admittance.

In order to meet the requirements of the South African trade, the apples must be practically free from scab or insect pests. Such fruit can be obtained in Canada, but not from the ordinary stock of apple dealers. An effort will be made this year to place this South African order, which will mean about three thousand barrels, where there will be no doubt about the cleanness of the fruit.

NOVA SCOTIAN PACKING AND MARKING DEFECTIVE.

Another defect in the Nova Scotian apples was that some of the barrels were falsely marked and fraudulently overfaced. It is unfortunate that these fraudulently marked and overfaced apples were from Nova Scotia. This province is well situated to command the South African trade. With common honesty in the packing and good judgment in the selection of the stock, the South African market ought to be supplied exclusively from Canada and particularly from Nova Scotia. It is to be hoped that the trade next year will show better results.

FRUIT FOR THE FRANCO-BRITISH EXHIBITION, LONDON, ENGLAND, 1908.

Beginning August, 1907, a collection of Canadian fruit was made for the Franco-British Exhibition held in London this season.

Fruit was secured during the fall from Ontario, Quebec, Nova Scotia and British Columbia and shipped to Montreal, where it was placed in cold storage until it should be required in London.

The fruit was collected under many disadvantages. The season of 1907 was very dry and fruit was under-sized, so that it was exceedingly difficult to secure, at the close of the season, a large quantity that would fairly represent the Dominion. A large quantity of very choice winter fruit that had been selected in Durham and Northumberland counties was left on the trees to secure perfection in colour till October 20. Unfortunately a heavy frost came the nights of the 20th and 21st, and injured the fruit to such an extent that it could not be regarded as good keeping stock. The frost was quite unprecedented. Apples were on the trees two weeks later this year without injury. Under the circumstances, we were obliged to supplement the prime stock we had already secured by selection from fruit stored for commercial purposes at Montreal. This was afterwards treated the same as the fruit previously collected. Pears and other fruits were also selected and sent to the Exhibition Branch of the Department of Agriculture, to be bottled for the London exhibit.

On April 4, 1908, the first shipment of exhibition apples was made from Portland to London. There were 873 boxes and 3 barrels in the shipment. These apples were taken from a temperature of 32 degrees, in which they had been held all winter, and shipped by express to Portland, the temperature being held at 34 degrees in

transit. The apples were carried at an average temperature of 34 degrees Fahr. from Portland to London, and landed in first class condition at the Surrey Commercial Docks, London, where they were placed in storage at a temperature of 32 to 33 degrees.

This first consignment consisted of:—

22 boxes and 1 barrel, grown in British Columbia.
427 boxes and 1 barrel, grown in Ontario.
269 boxes and 2 barrels, grown in Quebec.
155 boxes and 2 barrels, grown in Nova Scotia.

The following is an extract from the report of the official in charge of the fruit exhibit, who examined the fruit upon its arrival:—

'I examined the fruit on its arrival, opening one case of each variety. The apples were well packed and of more uniform size than those we received formerly.'

The exhibition fruit sent from the cold storage in Montreal was carefully packed in boxes, just as for commercial purposes, except that a layer of excelsior was placed at the top and bottom of the boxes. The excelsior occupied the space of about one-half a tier of apples and is necessary for carrying exhibition specimens. No excelsior was placed on the sides of the boxes and, in consequence, an occasional specimen was bruised slightly. The damage would have been more serious but for the fact that the fruit was carefully wrapped in a double thickness of paper. For commercial purposes the excelsior is not needed except for extra fancy specimens.

A few barrels were used experimentally, some packed in the ordinary way, except that the fruit was wrapped in paper. The fruit came out in good condition, but showed some barrel bruises as the result of pressure, that spoiled them for exhibition purposes.

The fruit in two barrels packed in cork waste, was free from bruises, but the cork shavings, being dry, had apparently absorbed the moisture from the apples, so that they came out somewhat withered and decidedly unattractive in appearance.

Incidentally, this shipment demonstrated most conclusively that Canadian apples can be stored in Canada till navigation opens in May, and then be placed in good condition on the English market. The quality, as tested in London, was excellent, and the condition such that the apples stood exposed on tables for several weeks until they shrivelled. There is no reason why the market for Canadian apples should not be extended two months at least after the usual time, by the use of cold storage. The extra cost would not be more than twenty to thirty cents per barrel. The market would not take the large quantities absorbed during the fall and winter months, but the price would be much higher. The competition would be with the Australian, Tasmanian and New Zealand apples.

EXHIBITION FRUIT, THE GROWTH OF 1908.

Shipments of exhibition fruit were sent to London from Montreal during the summer and fall of 1908. These consisted of apples, pears, peaches and grapes. All arrived in excellent condition, and did much to advertise the fruit-growing capacity of Canada, and dissipate erroneous conceptions of the Canadian climate.

BRITISH COLUMBIA SHIPMENT OF EXHIBITION FRUIT TO LONDON.

An especially interesting feature in connection with the Canadian Fruit Exhibit was the car of exhibition fruit from British Columbia. This car was shipped from Lytton, B.C., on the evening of October 3rd, and arrived at the wharfs in Montreal on the afternoon of October 9th. The car was well iced throughout the journey. The bunkers of the car upon its arrival in Montreal were found to be well filled with ice, and the fruit registered 58 degrees Fahrenheit after it was unloaded. There were

450 boxes of fruit in the shipment, which contained seven varieties, viz.: Blue Pearmain, Spitzenburg, Jonathan, King, Gano, Cooper's Market and Lawver.

The inspectors at Montreal found the fruit good exhibition stock in perfect condition.

The fruit was loaded in the cold storage compartment on board ship immediately after it was inspected. The vessel sailed the next morning, October 10, for London.

The temperature of the compartment in which the fruit was stored, was kept at an average of 33 degrees throughout the voyage.

The fruit, at the time of landing in London, was found in perfect condition.

THE EARLY APPLE AND TENDER FRUIT TRADE.

A large part of southern Ontario has all the requirements of soil and climate to insure success in early apples and tender fruits. The early apple trade has not developed because the transportation facilities would not permit of any market being reached except the extremely limited local market. The opening up of the Northwest, the establishment of a refrigerator car service to almost all points, and the equipment of ocean steamers with refrigerator chambers have changed the whole situation within the last few years. So rapid have been the changes that the fruit growers of this favoured district do not appreciate the changed conditions and so fail to take advantage of the opportunity to better their circumstances.

EARLY EFFORTS OF THE DAIRY COMMISSIONER'S BRANCH.

In the early part of July, 1906, the Dairy and Cold Storage Commissioner, acting upon a resolution brought up at the Dominion Conference of Fruit Growers, held in Ottawa in March, 1906, wrote to several steamship companies in Montreal, soliciting suggestions as to the best means of meeting the difficulty experienced by growers in securing sufficient quantities of early fruits to fill even the smallest cold storage chambers on their boats.

The steamship companies signified their willingness to assist the prospective shippers of this early fruit in various ways. One line suggested co-operation among shippers to increase the quantity of fruit and insure the filling of one cold storage chamber at least. Another line was of the opinion that they could arrange to take one or two cars in cold storage if they were given two weeks notice of intended shipments. Still another line expressed their readiness to book for shipment, in cold storage on three of their London bound vessels, quantities of fruit, not under twenty-five packages from each shipper, provided they were given a week's notice of such intended shipments. They suggested, also, that the growers contemplating making such experimental shipments should communicate directly with them.

The information contained in this correspondence with the steamship companies was circulated among the large fruit shippers. Arrangements were also made with the Canadian Pacific and Grand Trunk Railways to supply iced cars for export shipments to Montreal, between August 1 and September 30, 1906. The department agreed to pay icing charges to the extent of $5 per car. The cars were to be supplied by the railways on demand of the shipper to the local agent.

These arrangements, though very liberal, implied that fruit growers should co-operate, and it was found impossible to bring this about. It was also found impossible for shippers to give notice any considerable time ahead of the date when they intended to ship their fruit, owing to the fact that the fruit ripens somewhat irregularly. The quantity of fruit and exact date of shipment could not be given more than a few days in advance.

The few shippers who took advantage of the cold storage facilities provided by the railways and steamship companies for early fruit shipments, were much pleased with the way their fruit was landed in the old country markets. One shipper, in par-

ticular, was able to land early pears shipped from western Ontario, in the latter part of August, in the markets of Glasgow, Manchester and Liverpool in good condition, and obtained a good price for them. It is to be noted, however, that this particular shipment of pears was very carefully packed in twenty pound cases and shipped by express to Montreal, so that the packages would be placed in the cold storage compartment of the vessel with the least possible delay.

SHIPMENTS OF EARLY APPLES

During the summer of 1908, the Dairy and Cold Storage Commissioner made special arrangements (as outlined in Part V., 'Cold Storage Division' of this report) for the reservation of cold storage chambers for fruit only on four steamers leaving Montreal.

INSPECTION AT MONTREAL.

The inspectors at Montreal found the quality and condition of the early fruit shipped in these cold storage chambers variable, but on the whole very good.

It was noticeable that the early apples packed in barrels, arrived in Montreal not in the best condition. A lack of uniformity in grading and a high temperature causing overripe fruit, were in evidence in most of the barrel pack. The apples in some barrels showed decay on the first row around the press marks.

On the other hand, the boxed apples and pears arrived in Montreal in first class condition generally. The peaches and grapes arrived at shipside in excellent shape, and there was every reason to believe they would carry all right in cold storage throughout their long ocean voyage.

The Montreal inspectors' remarks upon the peaches shipped by the St. Catharines Cold Storage and Forwarding Company, St. Catharines, which were being sent to London, were as follows:—

Shipment for boat sailing from Montreal, August 22.

'The peaches were in excellent condition; and, though they were not striking as to size and the colour rather dull, it is our opinion that they will carry safely.'

Shipment for boat sailing from Montreal, September 5.

'The peaches were firm, of good colour, smooth and should carry all right. They were double wrapped, with a layer of cotton batting on the top and bottom. The temperature of the fruit was 52 degrees and the shed 72 degrees Fahr.'

Shipment for boat sailing from Montreal, September 19.

'The peaches were well packed with excelsior and batting cover. The fruit was large, well coloured and sound. For the most part the peaches were hard, but a few had become a little mellow.'

There were also shipped on this boat several boxes of peaches from the Grimsby Co-operative Company, packed in special boxes. 'The peaches were in good condition, large and sound with the exception of a few which had commenced to get a little mellow. The fruit was wrapped in different coloured tissue paper and presented a very attractive appearance.'

The St. Catharines Cold Storage and Forwarding Company sent several boxes of grapes on this boat. 'The grapes were in excellent condition, sound and with the bloom still on them. The bunches were wrapped separately in tissue paper and the whole layer of fruit wound in cotton batting. There was one layer to each box.'

Condition of fruit arriving in London, ss. 'Ontarian':—

Sailed August 22 from Montreal.

Arrived September 3 at London.

Packages carried at temperature of 34 to 36 degrees Fahr. Fruit arrived in good condition in every case where it was loaded on the steamer at Montreal in good condition.

SS. *Sicilian*:—
Sailed August 29 from Montreal.
Arrived September 11 at London.
Packages arrived at temperature of 34 to 36 degrees Fahr. Fruit arrived in good condition. The peaches were in good shape when delivered.

SS. *Hurona*:—
Sailed September 5 from Montreal.
Arrived September 17 at London.
Packages arrived at temperatures from 32 to 36 degrees Fahr. Apples, pears and peaches arrived in good condition.

SS. *Hungarian*:—
Sailed September 19 from Montreal.
Arrived October 3 at London.
Temperature of storage, 36 degrees Fahr. Fruit arrived in good condition. The peaches and grapes were highly satisfactory, the fruit retaining its bloom.

In these shipments were included boxes of exhibition fruit for the Franco-British Exhibition in London. In order to test the quality and demand for Canadian early apples, samples were sent to four of the leading fruit merchants in that city, two of whom were in the retail and two in the wholesale trade, asking them for the following information:—

(1) Are these varieties of apples desirable for the English market?
(2) Could we obtain a *better price* for these apples owing to the fact that they can be put on the market *earlier* than our fall varieties?
(3) Could you suggest any method of packing or any kind of package which in your estimation would secure the best prices and the briskest demand for these apples?

The replies of the fruit dealers to these queries have a very interesting bearing upon the possibilities of the development of a profitable early apple trade with the mother country. Two of these letters appear below. The first communication is from a retail firm and the second from a wholesale firm.

GENTLEMEN,—We are in receipt of yours of the 16th instant, and have also received the samples of apples, and have carefully examined them, finding the samples very good of each. The varieties are also good ones for early sale here, and some years they would do exceptionally well. This year, however, there is a very large crop of English apples, the bulk of which are put on the market through August and September, so that prices are not up to the average.

The fact that crops of apples here are so uncertain year by year has kept our growers from any proper system of arranging to keep their crops, so that you will see when the exceptional crop comes, the market is very much flooded, as they are taken from the trees.

As a rule, however, these early varieties would pay you to send, and even this year the colour of the 'Red Astrachan' and 'Duchess'—and the fact of them both being suitable for dessert apples—would enable us to get better prices than the bulk of the English coming on the market. We think the best way to pack these two or similar dessert apples, is in the 40-lb. box net, which is now almost universally used for the Californian, Oregon and other States for their dessert apples, as well as all coming from the Australian colonies being packed in the same way; and as the earlier varieties are naturally rather softer, it is best to wrap each fruit in paper in the same way that the above are always packed, as it not only protects the fruit, but they colour rather more quickly, and generally result in a better, clearer colour than if packed without any wrapping.

The 'Alexanders,' too, would come well in this way, unless they were extra large, which often happens with this variety off young, vigorous trees, but as they

are only used for cooking, the 'case' would not be so useful as for the dessert varieties, all our best buyers now being able to buy dessert apples in cases the whole year through, and are more each year in favour of all dessert apples being packed in this way.

One reason is that so many stores and retail firms can get consumers to take a case where they could not induce them to take a barrel. Another great advantage is that customers can examine the smaller package more easily, and if they are graded into ones and twos for the larger and medium good fruit, keeping all small and bad-shaped fruit out, we should be able to do very well with a regular supply of good dessert varieties packed in this way. We are making a special line of best dessert apples for our customers all the year round, and are continually getting good grocers to sell them, who at one time did not touch fresh fruit at all, and we do not sell by auction, so you will realize that if we can keep customers regularly supplied with good dessert fruit in the same size case all the year round, it must be of great advantage to the senders as well as being more easily worked by us as distributors.

Yours faithfully,

(Sgd) GEO. MONRO.

P.S.—Cooking varieties seem to do best in the barrels if well graded.

LONDON, S.W., September 17, 1908.

DEAR SIRS,—We are in receipt of yours of the 16th instant, and thank you for the case of apples. We may mention that we know these varieties very well and rarely, if ever, do they arrive here in good condition, even when sent in cold storage. The Red Astrachan and Duchess are particularly soft, and you will have seen that, even with the care taken of these, the fruit has arrived bruised. The Alexanders travel fairly well, when packed in this way, but the realization on the English market would not be sufficiently high to admit of a profitable business being done.

Up to the present time a successful business has been done in Canadian apples only when the fruit has been packed in barrels. When it has been packed in cases of 40 pounds there has been a limited demand, and as far as our experience goes, the results have not been as satisfactory as for barrels.

At all times at your service, we are,

Yours faithfully,

(Sgd) GARCIA JACOBS & CO.

The letter from Garcia Jacobs & Company, is given to show their experience with barrels. It can be assumed at once that this early apple trade must be done in boxes to be uniformly successful. It is equally true that common stock will not sell in boxes even for the prices it will bring in barrels. This firm had no adverse criticism to make on this sample of fruit.

Later sample cases of Elberta peaches and some assorted pears were sent to Messrs. Wm. Brooks & Son, and to Messrs. Geo. Monro, Limited, with the following letter:—

Dear Sir,—We have pleasure in sending you sample cases of Elberta peaches, shipped from Montreal on September 19, which arrived here October 4. They were in excellent condition on arrival, and are keeping well in our exhibit beyond our expectations. We are also sending you a few sample pears, Duchess, Sheldon, Anjou, Howell, Clairgeau and Bosc. This fruit was not kept in cold storage previous to packing.

The shipping of this fruit is a matter of experiment and we are anxious to know if these peaches would sell readily on the London market at this season, assuming that they reached it in good condition, and would keep well during a week after arrival. The peaches are in the original package and have not been disturbed, in order to give you a true idea of their condition.'

The following reply was received from Messrs. Monro, Limited:—

'Dear Sir,—We duly received the sample cases of Elberta peaches and the box with samples of pears.

'The peaches arrived in extra good condition compared with others of the same variety that are coming on the market, and we were able to realize more money on them than on the average from other sources. The fact of this sort being rather uncertain as to condition, depreciates the sale, as so many of them are in rather ripe condition and go rotten very quickly on the salesmen's hands, so that you must not lead your people to think that they would make this money in quantity. At the same time, we should advise you to draw their attention to the fact that they should not be allowed to get too ripe before sending.

All the pears are fairly saleable sorts, but the 'Clairgeau' is very treacherous, and if they arrive at all ripe are worthless. We should, therefore, suggest that you advise the growers to follow more on the Californian varieties such as the Doyenne du Comice,' 'Brown Beurre,' 'Winter Nelis' and 'Glout Morceaux,' which are all a better quality than those you send, and being well known here, find a ready sale. As far as the market for peaches is concerned, we are almost clear now and really good ones in good condition would find a ready sale. The English and French now are practically finished.'

Yours faithfully,

(Sgd.) GEO. MONRO.

Messrs. Brooks & Son, wrote as follows:—

Dear Sirs,—We have duly received your sample case of peaches, which was in fairly good condition. We should think that if you could get same to this country in good condition they would make a fair price. If you have any more of your exhibit you can forward them on to us and we will do our best for you. We have sold your case and are allowing you 10s. for same.

Thanking you for your letter, we are,

Yours faithfully,

(Sgd.) W. BROOKS & SON.

Re Case of Pears.

We should think they would make a fair price only that they would clash with the Californian and the State pears, and the kind you send as a sample are only the cheaper varieties.

Comice (Doyenne du)
Easter Beurre
Beurre Hardy

} These are the best kinds and should advise you to send these if possible.

Yours faithfully

(Sgd). W. BROOKS & SON.

COMMENTS BY THE REPRESENTATIVE OF THE EXHIBITION BRANCH.

'It is evident that the peaches are in demand, as Mr. Monro credits us with 15s. or $3.65 for the box of thirty-three peaches we sent him. Mr. Brooks credits us with 10s. or $2.43 for a box of thirty peaches. Averaging the two boxes, the wholesale price received would be nearly 10 cents each for the peaches. Peaches about the same size as ours are selling retail at 1s. or 24 cents each to-day (October 26, 1908) in the retail fruit stores, while pears are selling at from 2d. to 6d each according to size and quality.

'Apples are retailing at from 2d. to 4d. per pound according to quality.

'The quality of apples shown in our exhibit has been, I may say, as great a feature as their appearance. We have had constantly over 2,200 apples of different varieties in our apple show. These apples were distributed over 145 plates, 150 glass stands and 100 large glass jars, and placed on 29 tables and on many feet of shelving.

'Taking everything into consideration, I believe that our fruit exhibit at the Franco-British exhibition is the best we ever had, and that it has created much interest and admiration is an acknowledged fact.'

THE PEACH TRADE.

The success attending the shipment of the Elberta peaches is particularly gratifying. This variety is being planted very extensively. There are thousands of acres of land in southern Ontario, used in general farming, that will grow Elberta peaches to perfection. If the confidence of growers can be established that the markets will develop for this peach, there is the possibility of a very large and most profitable trade.

IMPORTED FRUIT.

REGULATIONS FOR MARKING.

The regulations with reference to the marking and grading of foreign apples are practically the same as for home grown fruit. The importers of the fruit are obliged to mark it in accordance with the Fruit Marks Act (Inspection and Sale Act, Part IX.) as if they were the original packers. That is, they are obliged to place their name and address upon it, and if the grade marks are not already upon it to mark the fruit with the marks prescribed. The importers are then held responsible just as the packer is in the case of home grown fruit.

IMPORTATION OF AMERICAN APPLES.

The following table shows the importation of apples into Canada from the United States by periods, ending December 31, 1908:—

STATEMENT showing the importations of Apples into Canada, by Ports, for the undermentioned periods for the year 1908.

Ports.	April 1 to Aug. 31, 1907.		September, 1908.		Oct. 1 to Dec. 31, 1908.	
	Barrels.	Value.	Barrels.	Value.	Barrels.	Value.
		$		$		$
Ontario—						
Chatham	1	6				
Fort William	25	109				
London					1	2
Morrisburg					10	25
Ottawa	3	20			6	17
Port Arthur	142	686			3	16
Sault Ste. Marie	2	10				
Toronto	165	271			20	43
Windsor	40	119			3	6
	378	1,221			43	109
Quebec—						
Montreal	143	635			320	1,112
Quebec	397	545			6	9
Rimouski					1	2
St. Johns					7	17
Sherbrooke	181	247			221	370
Three Rivers					2	2
	721	1,427			557	1,512

STATEMENT showing the importations of Apples into Canada, by Ports, for the under mentioned periods for the year 1908—*Concluded.*

Ports.	APRIL 1 TO AUG. 31, 1908.		SEPTEMBER, 1908.		OCT. 1 TO DEC. 31, 1908.	
	Barrels.	Value.	Barrels.	Value.	Barrels.	Value.
		$		$		$
Nova Scotia—						
Digby			1	4		
Halifax	795	2,928	146	511	3	22
North Sydney	22	81				
Pictou			2	6		
Sydney	244	818	274	854		
Truro	4	15				
Yarmouth	78	256				
	1,143	4,098	423	1,405	3	22
New Brunswick—						
Bathurst					3	6
Fredericton	13	39	2	9		
St. John	691	2,670	9	27		
St. Stephen	4	18	1	3	18	42
Woodstock	14	40				
	722	2,767	12	39	21	48
Manitoba—						
Brandon	1,269	5,148	1,128	4,627	328	918
Emerson	6	26	11	45	11	45
Gretna					3	10
Winnipeg	3,052	11,365	952	3,422	1,485	5,098
	4,327	16,539	2,091	8,094	1,827	6,071
British Columbia—						
Grand Forks					371	1,392
Greenwood	43	129	28	84	164	358
Kaslo	7	48	33	133	23	98
Nelson	557	2,894	756	2,242	4,218	14,731
New Westminster	19	42			43	118
Prince Rupert					26	152
Rossland	194	854	399	1,296	1,129	4,015
Vancouver	2,707	18,104	1,193	4,873	2,699	10,187
Victoria	1,436	7,413	203	813	778	2,552
	4,963	29,484	2,612	9,441	9,401	33,603
Prince Edward Island—						
Charlottetown	39	131	39	133	3	10
Summerside					1	3
	39	131	39	138	4	13
Alberta and Saskatchewan—						
Calgary	954	3,256	1,173	3,705	7,583	23,235
Edmonton	271	1,146	94	293	1,482	4,782
Lethbridge	247	1,173	465	1,520	2,743	8,404
North Portal					3	11
Regina	536	1,803	544	1,596	219	598
Moosejaw	253	823	342	1,207	363	1,227
	2,261	8,201	2,618	8,321	12,393	38,257
Yukon—						
Dawson	118	1,347	70	563	627	6,087
White Horse	59	574	13	78	89	573
	177	1,921	83	641	716	6,660
Grand total	14,731	65,789	7,878	28,079	24,962	86,295

EARLIEST APPLES.

From this table it will be noted that during the first period, ending August 31, 14,713 barrels of apples were imported. At this time there are early varieties ready to be placed upon the market in Canada. Yellow Transparent, Red Astrachan, Duchess and similar varieties are ripe in southern Ontario during this month, but very few of these varieties are grown, and the few that are grown are not well grown and are not concentrated at any one point.

SEPTEMBER APPLES.

For the next period of one month, September, 7,878 barrels were imported. This is at a time when Canada is producing large quantities of early apples, but, unfortunately, comparatively little attention is paid to early apples, nor have the ordinary apple operators made a business of shipping them. In fact, the method of shipping these early apples is so different from that used for other apples, that it might be considered a special variety of fruit, requiring something of the care that is given to the peach and other tender fruits.

FALL APPLES.

During the next period of three months, ending December 31, 24,000 barrels were imported. This period of three months is the season when shipments could be made of our best fall and early winter varieties, of which there is always a surplus for export.

Looking at these tables simply, it will be noted that the quantity imported from the United States is not large. But small as it is, it should be replaced by Canadian fruit, and it might be if Canadian fruit growers would use the proper methods for distributing their apples. The fact that there are nearly 8,000 barrels imported to the end of August, shows that the people of southern Ontario are not taking advantage of their opportunities. These imported apples travel long distances, have to pay heavy freights, customs duty and all the expenses of the middlemen, consequently they are high-priced to the consumer. The price in Winnipeg up to this time was from $2.50 to $3 per box to the consumers. The price was scarcely less in Ottawa and Montreal. This is more than is usually paid for the best winter fruit. It would seem from this that there is at present an opening for an August trade even at these high prices. With the price lower, so as to compete with the other kinds of fall fruit, no doubt a very large trade could be developed. This market, therefore, can be relied upon to absorb all the early fruit that we are likely to grow for some time, not to mention the expansion in the nearby home market as well as the large possibilities in the British market.

APPLE IMPORTS BY PROVINCES.

It is interesting to analyse this table according to provinces. It will be noted that Port Arthur and Toronto are the only two points in Ontario taking any large quantity of fruit. With reference to Toronto, it can be explained that aside from the fact that it is a large distributing point, the channels of trade have been worn in that direction by the banana trade and the trade in strawberries and other early fruit, so that apples follow in the natural course even after the market is well supplied by home-grown fruit. Port Arthur is the terminus of a line of steamers having connections at Detroit and Port Huron. This undoubtedly accounts for the importations there, though orchards adjacent to Windsor and Sarnia could grow this fruit. Importations into Ontario for the rest of the season are scarcely appreciable.

For the province of Quebec, the importations of fruit follow the lines of trade to Montreal and Quebec. Sherbrooke, no doubt, is influenced largely by the proximity to the American border for part of the importations there. In Nova Scotia

the excellent facilities by boat bring fairly large shipments to Halifax and Sydney. So, too, in New Brunswick, the boat lines between Boston and St. John facilitates the trade in apples, St. John importing early in the season and exporting a larger quantity later in the season to American ports.

In Manitoba the importations are conveniently made from the large cities, Chicago, St. Paul, Minneapolis, to Winnipeg and to Brandon. The total for the whole province to the end of December is 12,489 barrels. Alberta and Saskatchewan for the season imported 30,000 barrels, much of which might quite readily be displaced by apples from the other provinces. British Columbia imported 17,000 barrels. It would appear, therefore, that British Columbia is not yet in a position to do much more than supply home demands, though there is a large and growing trade with the northwest provinces.

NORTHWEST MARKET DESERVES THE ATTENTION OF SHIPPERS.

Up to January 1st prices were, on the whole, much better in the Northwest than in the British market. It is, therefore, a legitimate conclusion that fruit growers would find the Northwest a very profitable place to dispose of their stock. Indeed, of late years attention has been directed almost exclusively by the larger dealers in Ontario to the British markets, although these importations of American apples show they are neglecting somewhat the home market, which in all countries is the most profitable market for the home producer.

THE NORTHWEST MARKET FOR EARLY APPLES.

The Northwest draws the larger portion (about 8,000 barrels) of the apples used during the months of August and September from the United States. This, of course, is a high priced trade. Indeed, the high prices paid during these months limit the trade to those who will pay for luxuries. The fact that these high prices are being paid is not brought home to the Canadian fruit grower, nor does he know the details of the trade sufficiently well to induce him to risk the expense of trial shipments. It is thus a fact that, though the possibilities exist for a large trade with the Northwest in early apples, the trade is not developed, though the awakening of the apple growers to this chance of enlarging the fruit market is expected in the near future.

That is to say, the Canadian growers will learn that by growing certain varieties and by shipping from certain parts of Canada, the season for Canadian apples can be pushed back to about the first of August. The Yellow Transparent, the Williams, the Lievland Raspberry and the Red Astrachan can be ripened in certain parts of British Columbia and in the southern part of Ontario by the end of July or at latest the first week in August. There is at the present time a market for 150,000 or 200,000 boxes of apples at prices equal to or exceeding the prices for the best winter varieties now at the disposal of the Canadian grower.

During August and September, the very finest of fall varieties are prime for shipping from southern Ontario and parts of British Columbia, and there are in both provinces the soil and climate to produce tens of thousands of barrels of the best early varieties. Lack of enterprise appears to be the only excuse for the shortage in this early fruit. Splendid apple land in southern Ontario is now devoted to growing coarse grains, yielding little more than simply labourer's wages to the grower. This land, if devoted to the growing of apples that could be marketed during August and September, would not only pay double a labourer's wages to the grower, but would give him a net profit of from $50 to $150 per acre over and above the cost of production.

The demand for this class of fruit will, of course, increase proportionally with the population. In fact, there is every reason to believe that it will increase faster perhaps than the demand for later apples. This is certainly a market that should be catered to by the Canadian fruit grower. It may be well to state here that it is not

alone the markets of the Northwest that would absorb this early fruit, but American fruit could be displaced in the larger cities of Ontario, Quebec and the maritime provinces during the months of August and September. These openings, together with the absolute certainty of a good outlet in the British markets, ought to inspire confidence among apple growers and lead to a large planting of early apples in southern Ontario and British Columbia.

THE CONDITIONS OF THE TRADE.

The Basket Trade.

This trade will begin with the Red Astrachan and Duchess, followed by the Gravenstein and Wealthy. These varieties are sent to the nearby markets, London, Hamilton, Toronto and even as far as Ottawa and Montreal in baskets. Shipped in this way they reach the consumer in fairly good order, but shipment in baskets will not suit the long distance trade, though it does fairly well for the nearby markets. The basket is not only too expensive, but does not permit of proper protection of the fruit nor of rapid shipping; the apples are also much more liable to deterioration in baskets than in boxes.

Early Apples in Barrels.

Later in the season these apples are shipped in barrels. It need scarcely be said that this is an exceedingly dangerous practice. The barrel is altogether too large a package for this grade of fruit. The weather is very warm when it is being shipped and this particular class of fruit is soft and decays very rapidly. It can readily be seen that the packing of these apples while they are still warm in so large a package as the barrel, has but one result. Unless the journey is exceedingly short and the weather particularly favourable, a large part of each package will have deteriorated to such an extent that the apples will be entirely unfit for market.

Pre-Cooling and Boxes.

Two conditions are absolutely essential before the business can hope to be completely successful. First, boxes must be used. Second, cold storage or cool storage will place the business on a much better basis. Nothing more need be said in favour of the box. This package is the only one from the fact that it is well ventilated, and is much more readily packed and much more conveniently handled than any other. Another feature that must not be lost sight of is this, that with so large a mass as we have in a barrel, it is impossible to carry soft fruit, like the Astrachan and the Duchess, without bruising by mere pressure from their own weight. This is not the case with the box. It is, therefore, to be hoped that those who are looking to this trade will as quickly as possible turn their attention to this package.

Box Shipments a Success.

Fortunately we have fruit growers enough using the box to be able to speak from actual experience in the matter. The St. Catharines Cold Storage Company shipped both in barrels and boxes, and their experience has been that the box trade is much safer than the barrel trade. The Chatham Co-operative Fruit Association, also large shippers of southern Ontario apples, have almost discarded the use of barrels, and are bringing the box trade to as great perfection as any shippers in southern Ontario. One good effect of the introduction of boxes in the early fruit trade will be the development of a box trade in fancy fall and winter fruit. This is a trade that is now given entirely to the growers on the Pacific coast, though there is not the slightest reason why the growers in the east should not compete for a share of it.

Refrigerator Cars and All Rail.

Closely connected with the packages comes the question of transportation. The ideal transportation will, of course, be by refrigerator car. At the present time, a

large percentage of these apples are shipped in ordinary cars to the lake port, Sarnia, Goderich, Owen Sound or Collingwood, reshipped there by steamer to Fort William or Port Arthur, and from there shipped by rail again to the Northwest points. The inspectors in the Northwest have been asked to investigate as far as possible into the relative merits of the lake and rail and the all-rail routes. They have no hesitation in saying that the fruit shipped by rail shows up in general better than the lake and rail shipments. The fruit shipped in refrigerator cars turned out infinitely better, where properly iced, than did the fruit in ordinary box cars.

Delays at Shipping Station.

There yet remains a great deal to be done in securing facilities for prompt shipment from the orchards to the distant markets. The fault is sometimes with the apple operators who have the fruit picked and packed in barrels, and then may not have the sale made, and allow the fruit to stand one or perhaps two weeks before ordering it to be shipped. This, however, is not so frequent as lack of promptness on the part of the railways to furnish cars. This is a frequent source of complaint, and it is not too much to say that the inexcusable delinquencies of the apple operators and the transportation companies reduce the value of the crop at least 25 per cent.

How to Load Car with Boxes.

Even in the matter of loading the cars the Canadians have yet a great deal to learn. They do not appreciate the value of ventilation even in refrigerator cars. It is usual for Canadian shippers, both from British Columbia and from Ontario, to ship to the Northwest without using any dunnage between the layers of boxes. This is a mistake which the Americans do not make. The American fruit coming into Winnipeg is all carefully dunnaged between each layer of boxes and tacked at intervals so that the load within the car itself is perfectly immovable, no matter how severe the shunting may be. This may appear a minor point, but it is the means of saving many dollars in preserving the condition of the fruit.

Box Packing and Grading.

The Canadian packers fail to grade closely enough. They have not yet acquired the art of packing boxes properly, and quite frequently will resort to methods of filling the box which should not be countenanced. One of the first principles of box packing is that all the apples in a particular box should be as nearly as possible of the one size. Quite frequently eastern apples are packed so as to show one layer in the box smaller than another, a device which has been adopted not for the purpose of deceiving the buyer, but for the purpose of bringing the apples up to the proper height in the box at the time of packing. This simply shows that the packer does not understand his business. It is quite possible,—and this is frequently demonstrated in every good packing house—to pack any size or shape of apple in our standard box without resorting to any device such as using a smaller tier of apples or using packing material at the top or bottom.

THE QUALITY OF WINTER APPLES SHIPPED TO THE NORTHWEST.

Though there was much good fruit sent from Ontario to the Northwest last year, there was unfortunately a large quantity of very inferior stock. The following letter from a consumer in the far Northwest will help, perhaps, to form public opinion in Ontario with reference to this trade.

SASKATCHEWAN, November 13, 1908.

DEAR SIR,—I would like to write you *re* the quality of apples we are getting shipped up to us from Ontario this fall.

I bought recently a barrel of apples from the Trading Company at Glen Ewen, Saskatchewan. They were marked 'No. 1 Spy,' packed by

Zenda, Ontario. After getting the barrel home, I opened it, taking a mean advantage of the packer by opening the bottom. At a very conservative estimate, there was fully 75 per cent of spoiled fruit in the first eight inches in the barrel. Some of the apples were entirely rotten and others were all badly gone. I did not empty the barrel, but could see lots of other bad fruit down in the barrel; and what is more, the apples were not Northern Spies. They were fine large apples, solid (i.e. the good ones), juicy and fit for eating now. I took the barrel back, and we opened another barrel of No. 1 Spy, same packer. The apples in this barrel were No. 1 Spy all right, as far as size and kind were concerned, but in picking over the barrel we took out twelve pounds of bad apples, some entirely rotten and others nearly so. The manager of the company had another barrel of so-called No. 1 Spy opened and asked me what I thought of it. As far as size is concerned it was a poor No. 2 Spy. A barrel of No. 1 Snows examined was unmentionably bad. These were practically the first barrels opened in the consignment, so I presume the balance will be proportionally no better.

There were a lot of complaints last year about the Ontario apples shipped here, and it seems to me as if some of the Ontario shippers think any old apple at all is good enough for us. Apparently the Fruit Marks Act is not a deterrent to them. Possibly if it were looked after a little stricter and a respectable sized fine applied, they might think it would pay to be good.

A young lady from Ontario who works in the store told me she was surprised at the kind of apples shipped up here. Such apples as these, she said, would not be considered usable; they would not be worth picking up. More might be said on this subject. I thought it only right to let you know about these shipments.

Yours, &c.,

(Sgd.)

The cost and conditions of transportation are such that few of the consumers have more than one chance a season to get their supply of apples. Consequently, the disappointment that comes from such experiences as the above is most bitter, and will serve to lessen the trade materially. Every apple grower in Canada should feel a personal interest in the kind of fruit which is shipped to the Northwest. If the dwellers in the far west continue to receive fruit fraudulently packed and marked, the tendency will be to do without fruit and very soon the fruit eating habit will be lost and with it a very valuable market. It cannot be too strongly impressed upon the owners of orchards that every incident of this sort lessens the value of their particular orchards, and that they have a personal and individual interest in maintaining the proper standard of marking and packing fruit. They will, therefore, not only pack honestly and mark honestly themselves, but they will not be, directly or indirectly, the instruments through which others may use fraudulent practices. Too frequently the owners of orchards sell to men whom they know are not honest. It is not an uncommon thing to find a man who has a good reputation among his neighbours in other respects, allow fruit to be packed fraudulently in his orchard, with his knowledge, but of course after he has sold it in the lump.

INDIVIDUAL GROWER AND RETAILER CANNOT GET TOGETHER.

The difficulties of the Northwest trade are great. There can be no extensive direct trading with safety between individual growers in Ontario and individual retailers in the Northwest, for the simple reason that it is impossible for these people to become personally acquainted with each other, and without a personal acquaintance with each other trading would be hazardous.

SOME DISHONEST GROWERS.

Every grower in Ontario cannot be trusted with an order when he is to pack and ship his own fruit. Indeed, whether as the result of low moral character or want of knowledge of the art of packing and grading or of misconception in the matter of

grading, the gravest of complications are sure to arise if it is assumed that the fruit growers can be trusted individually in all cases.

SOME DISHONEST RETAILERS.

On the other hand, it is equally certain that there are a number of retailers in the Northwest who cannot be trusted implicitly. If fruit is sent to them, leaving it to them to determine its condition and, consequently, its price, the results will be far from satisfactory to the grower.

TWO DIFFICULTIES IN DEALING WITH THE WHOLESALE MERCHANTS.

If the trade is done through the large fruit merchants in the business centers, two difficulties present themselves. First, there are frequent delays in the distribution of the fruit. Even with the very best of business facilities, a wholesaler will of necessity have some delays at the point of distribution which will very likely prove fatal to the condition of the fruit.

Second, it is affirmed that when the individual fruit growers have placed the trade entirely in the hands of the wholesalers in the Northwest, the wholesalers take advantage of these conditions and absorb nearly the whole of the profits that should be more evenly distributed between the consumer, the middleman and the producer. As a consequence, dealing through the wholesale merchants under present conditions makes the fruit dearer to the consumer and realizes only a small price for the producer, with, let us say, somewhat more than a fair profit to the wholesaler. Double the business might give the wholesaler the same net profit and, at the same time, furnish the consumer with fruit at a much lower price, and give the grower an outlet for twice as much produce at a fair profit.

CO-OPERATION THE REMEDY.

Co-operative associations would remedy both evils. The shipments, even when made through the wholesale house, might go direct to the retailer, and the amount at stake would be so large that the association would have a representative on the ground to regulate prices and profits.

FRUIT MEETINGS.

Instruction in the provisions of the Fruit Marks Act and in its application to practical conditions can never be final. New men are constantly taking up the business of fruit growing and selling and new conditions are always presenting themselves. For these and other reasons it is very desirable that the Dominion fruit inspectors keep in constant touch with the fruit growers and the fruit packers. Fruit meetings of various sorts afford splendid opportunity for this. Consequently provision is made that all the large gatherings of fruit growers shall be attended by one or more of the inspectors. It is not by any means essential that they shall be on the programme on every occasion, although as a matter of fact, it is very seldom that there is a large gathering of fruit growers without one or more items being furnished by some of the fruit inspectors.

INSPECTORS IN SYMPATHY WITH FRUIT GROWERS.

A very important part of their work can be done by meeting the fruit growers singly or in groups, before and after the meetings, to find out their special needs, making explanations on disputed points in the Fruit Marks Act, or in discovering facts with reference to the fruit trade that they can always turn to account in their inspection work.

British Columbia Fruit

It also enables the fruit growers to appreciate that the inspectors are working wholly and solely for the general good; and, on the other hand, it enables the inspectors to see things from the point of view of the fruit growers and fruit packers. This intercourse between inspectors and fruit growers is accountable, no doubt, for the happy relations that exist between the staff of the Fruit Division and those whose work they have to inspect.

It is also a partial explanation of the very great change that has been brought about of late years in the Canadian fruit trade. There is no part of the fruit business, whether it is a matter of general culture or a particular fact with reference to the fruit crop of the present season, that they are not familiar with. The inspectors are therefore ready to assist those who need information, and they also by their intimate acquaintance with the details of the work in every neighbourhood, are in a position to discriminate between those who are working with a fraudulent intent and those who may happen to err through misjudgment or absolute ignorance.

FRUIT INSTITUTES.

The qualifications of the inspectors have created a demand for their services for the fruit institutes that have become a special feature of the educational work carried on by the provinces, particularly the province of Ontario.

At the Short Course in Horticulture at the Agricultural College, Guelph, Mr. Carey was in attendance three days, during which time he delivered one address and was in constant requisition during the discussions that followed the addresses. I also attended the Short Course and delivered three addresses.

FARMERS' INSTITUTES MEETINGS.

Mr. Carey attended a series of meetings extending from February 18 to February 23, in the apple districts north of Lake Ontario, at Beamsville and at Stony Creek.

ANNUAL MEETINGS OF THE PROVINCIAL ASSOCIATIONS.

The annual meetings held in the three maritime provinces were attended by Mr. Vroom. Mr. Carey and myself attended the Ontario Provincial Association, and Mr. Maxwell Smith attended the British Columbia annual fruit meeting.

SPECIAL FRUIT MEETINGS.

Special fruit meetings were organized by the Fruit Division in the apple district north of Lake Ontario, and held in the following places: Wicklow, East Colborne, Brighton, Wooler, Castleton and Warkworth. All these meetings were attended by W. W. Brown and P. J. Carey. I attended the three meetings at Wicklow, Colborne and Brighton. These meetings were held in orchards. The attendance was large. The wish was expressed at the meetings that they would be repeated from year to year.

In New Brunswick, Mr. Vroom attended eight meetings in June, all of which were quite successful. There is an increased interest in the valley of St. John in fruit growing. The farmers are taking better care of their trees, and as a consequence, they find that they form the best paying portion of their farms.

MEETING OF THE INTERNATIONAL APPLE SHIPPERS.

This is a very important meeting of the principal apple operators in Canada and the United States. It is particularly valuable, inasmuch as every man attending is keenly interested in the business side of the industry. They come from all parts of the apple-producing country, and consequently, are in a position to give information on a variety of topics. Perhaps at no other gathering is it possible to secure so good

an idea of the general nature of the crop, though unfortunately this information is not always published in a form to benefit the growers.

The meeting this year was held at Niagara Falls, August 8 and 9, and was attended by Mr. P. J. Carey. I was also able to attend for a few hours while on other business in the neighbourhood.

OTHER MEETINGS.

Mr. Vroom and myself were present at a meeting of the apple shippers at Kentville, N.S., December 18.

Nearly all the inspectors have, during the year, been called upon incidentally to attend informal meetings of fruit growers or shippers.

JUDGING FRUIT.

Mr. Dery, Mr. Carey, Mr. Maxwell Smith, Mr. Vroom and myself have been asked to judge fruit at the fruit fairs on several occasions during the year. This is a very important phase of the work. It enables the judges to point out the good and bad features of packing and packages to a class of fruit growers who are likely to profit by the instruction. It also enables the inspectors to impress upon fruit growers, generally, by visible example, just what is meant by the definitions of the different grades of fruit.

MISCELLANEOUS WORK.

CORRESPONDENCE.

The work of enforcing the Inspection and Sale Act and the fruit crops reports, naturally bring the Fruit Division in contact with a large number of fruit growers and dealers who turn to the Fruit Division for advice in all matters relating to the fruit trade.

Though the Fruit Division is largely concerned with the commercial side of fruit growing, it is impossible, even if it were desirable, to draw the line sharply between the commercial side and the productive side of fruit growing. Growers write to the Fruit Division for information with reference to all phases of fruit growing. Under these circumstances, not remarkable, a very large correspondence has developed that cannot be classified under any particular head. Many letters come in from people who are contemplating taking up fruit growing as a business, making inquiries with reference to particular parts of the country suitable for their purpose, varieties of fruits that are to be recommended, and the market conditions they are likely to meet. A large number of inquiries are also suggested by the Fruit Crops Reports with reference to insect and fungous diseases. We answer all questions with reference to these problems of fruit growing as promptly as possible. In this connection we have availed ourselves of the assistance of the officers of the Experimental Farm and other public officials who can furnish information.

IDENTIFICATION OF VARIETIES.

During the season a large number of specimens of fruit are sent in to be named. We have excellent facilities for doing this work, which is rendered more necessary by the provision in the Inspection and Sale Act that all fruit in closed packages must be marked with the name of the variety of the fruit. Naturally, where there are so many varieties and where seedlings are so common, as in the case of apples and other tree fruits, there are many varieties either quite rare or that have never been named, and it is in the interest of the trade that these should be discovered and properly dealt with, so that their owners will not be rendering themselves liable under the Inspection

and Sale Act. We, therefore, extend an invitation to all fruit growers to send specimens to the Fruit Division for identification. In the case of apples, these can be readily sent by post if four typical specimens are wrapped individually in paper first and then all four tied in one piece of strong manilla paper. This should be covered with a second covering of strong manilla, and it will then carry quite readily through the post to this office. Soft fruits, such as cherries, peaches and plums, should be wrapped in paper—oiled paper by preference—then wrapped in excelsior, or better, in cotton batting, and then protected with a pasteboard box. In all cases, as much should be told about the history of the fruit as possible, the conditions under which it is grown, and, if possible, a specimen of the leaves and bearing wood should be included. All such specimens may be sent postage free.

I have the honour to be, sir,
Your obedient servant,

A. McNEILL,
Chief, Fruit Division.

REPORT

OF THE

DAIRY AND COLD STORAGE COMMISSIONER

FOR THE

FISCAL YEAR ENDING MARCH 31

1909

PART V.—COLD STORAGE DIVISION.

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PART V.—COLD STORAGE DIVISION.

CREAMERY COLD STORAGE.

The policy of paying a bonus of $100 for the erection of suitable cold storages at creameries, was continued during the year and bonuses were paid in full as follows:—

C. Hervey & Co., Amqui, Matane Co., Que.
G. J. Adams, Adamsville, Que.
P. H. McIntosh, Beaver, Que.
G. Eug. Verreault, Dalibaire, Matane Co., Que.
Felix Rondeau, St. Emélie de l'Energie, Berthier, Que.
Eug. Godbout, St. Eloi, Temiscouata Co., Que.
J. A. McNaughton, Flodden (Melboro P.O.), Richmond Co., Que.
D. Guilbault, St. Gabriel de Brandon, Berthier Co., Que.
J. J. Cunningham, Garland, Huntingdon Co., Que.
G. W. Thompson, Kinnear's Mills, Que.
R. D. McEwen, Kensington, Huntingdon Co., Que.
A. Laplante, La Minerve, Labelle Co., Que.
W. Lemay, Ste. Philomene de Fortierville, Que.
A. J. O'Hara, Rupert, Wright Co., Que.
A. Page & Frère, Ste. Scholastique, Two Mountains Co., Que.
J. E. Stultz, Steeves Settlement, Westmoreland Co., N.B.
Delphis Tetrault, Upton, Bagot Co., Que.
Robert Allen (Martin's Creamery) Vegreville, Alta.

Louis Menard, St. Lazare, Que., and Jas. Elliott, Tatehurst, Que., were each paid a balance of $50 which was due on an old application, and which had been withheld for non-fulfilment of conditions. A delayed payment of $25 was made to B. A. Longdeau, Shefford Mountain, Que., which completed the bonus in his case also.

ICED CAR SERVICES.

The iced car services which have been in operation for several years were continued during the season of 1908. These services are as follows:—

1. Iced cars for butter are run regularly over certain routes weekly or fortnightly, as the case may be, carrying butter in small lots at regular tariff rates. The government guarantees two-thirds of the earnings of the car from starting point to destination plus $4 per car for icing.

2. Iced cars for cheese are supplied during a limited period for about ten weeks, beginning in July, for shipment of cheese in car loads at regular tariff rates. The cars are supplied by the railway company on demand of shipper in the usual way and the government pays icing charges to the extent of $5 per car.

3. Iced cars for fruit intended for export in cold storage are supplied on the same terms as the iced cars for cheese.

For particulars of these services see page ...., part IV.

COLD STORAGE CHAMBERS RESERVED FOR FRUIT.

Shippers of early apples and tender fruits who in the past have wished to take advantage of the cold storage facilities on steamers sailing from Montreal have been hampered in their desires by the difficulty of making shipments large enough to fill

even the smallest chamber The temperature necessary for giving the safest carriage to fruit (32-33 degrees F.) as well as other reasons, makes it impracticable to stow other produce in the same chamber, therefore, if the chamber is not filled with fruit there is dead space which must either be paid for by the shipper or lost by the steamship company. The result has been that very little fruit has been shipped in cold storage.

To obviate this difficulty the minister authorized the Dairy and Cold Storage Commissioner to have chambers reserved for fruit only, on four steamers sailing from Montreal to London, as follows:—

SS. *Ontarian,* sailed August 22, 1908; arrived London, September 3.
SS. *Sicilian,* sailed August 29, 1908; arrived London, September 11.
SS. *Hurona,* sailed September 5, 1908; arrived London, September 17.
SS. *Hungarian,* sailed September 19, 1908; arrived London, October 3.

London steamers were chosen so that direct shipments of fruit could be made to the Franco-British exhibition.

The chambers were well filled and only a small claim has been made on the Department of Agriculture for dead space.

The fruit, including peaches, pears, grapes, and apples, were landed in good condition. Careful examination of its condition was made both at Montreal and at London by the cargo inspectors employed by this branch.

It is likely that this plan of assisting in developing the export of tender fruits will be continued and extended.

EXTENT OF COLD STORAGE SPACE AVAILABLE ON STEAMERS SAILING FROM MONTREAL AND QUEBEC DURING THE SEASON OF 1908.

During the season of 1908 there were 46 steamers sailing from the ports of Montreal and Quebec for European ports, with a total cold storage capacity of 1,015,556 cubic feet, and 19 steamships with a total cooled air capacity of 904,790 cubic feet.

Adding together all the sailings that were made during the season, the total availale space was 4,907,195 cubic feet of cold storage and 4,217,648 cubic feet of cooled air.

NUMBER OF SAILINGS OF STEAMERS FROM MONTREAL AND QUEBEC, WITH DETAILS OF COLD STORAGE ACCOMMODATION, SEASON 1908.

Allan Line.

Name of Steamer.	No. of Sailings.	No. of Chambers.	Capacity in Cubic Feet.
To Liverpool—			
'Tunisian'	7	4	21,650
'Victorian'	7	5	17,260
'Virginian'	7	4	12,440
'Corsican'	8	5	24,270
'Grampian' (part of season only)	1	5	23,400
To London—			
'Sicilian'	4	4	17,980
'Hibernian'	4	3	7,955
'Hungarian'	2	3	7,124
'Ontarian' (part of season only)	2	4	16,843
'Pomeranian'	3	2	8,056
'Sardinian'	4	2	9,628
'Parisian'	3	1	4,790
'Corinthian' (part of season only)	4	4	16,722
To Glasgow—			
'Corinthian' (part of season only)	1	4	16,722
'Pretorian'	7	6	25,270
'Numidian'	1	2	8,101
'Ionian'	7	6	13,553
'Grampian' (part of season only)	6	5	23,400
'Hesperian'	7	5	23,400
'Ontarian' (part of season only)	1	4	16,843

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NUMBER OF SAILINGS OF STEAMERS FROM MONTREAL AND QUEBEC—*Concluded.*

Canadian Pacific Line.

Name of Steamer.	No. of Sailings.	No of Chambers.	Capacity in Cubic Feet.
To Liverpool—			
'Lake Erie'	5	4	21,700
'Empress of Britain' (from Quebec)	7	3	29,700
'Empress of Ireland' "	7	3	29,700
To London—			
'Montrose'	5	4	23,000
'Montfort'	4	3	24,700
To Bristol—			
'Montcalm'	5	1	15,340
'Monmouth'	5	2	15,400

Dominion Line.

To Liverpool—			
'Dominion'	6	4	40,985
'Canada'	6	4	47,915
'Kensington'	5	1	25,867
'Southwark'	3	1	25,313
'Ottawa'	5	2	27,410
'Vancouver'	1	4	14,770
'Norseman'	1	8	62,840
To Bristol—			
'Manxman'	5	3	54,480
'Turcoman'	5	4	38,440
'Englishman'	4	4	37,600

Donaldson Line.

To Glasgow—			
'Marina'	5	4	11,719
'Parthenia'	6	4	16,000
'Athenia'	6	4	16,122
'Lakonia'	4	4	14,526
'Cassandra'	6	3	7,770
To Rotterdam—			
'Kastalia'	1	4	13,498

Thomson Line.

To London—			
'Cervona'	5	4	15,320
'Devona'	6	3	21,953
'Hurona'	6	4	20,487
'Iona'	6	4	18,472
'Latona'	1	4	45,682
'Cairnrona'	5	6	20,424

Summary.

—	No. of Sailings.	Cubic Feet.
To Liverpool	76	2,054,624
To London	64	1,113,538
To Glasgow	57	956,835
To Bristol	24	768,700
To Rotterdam	1	13,498
Totals	222	4,907,195

COOLED AIR SERVICE, 1908.

The following steamships with cooled air service sailed from the port of Montreal during the season of 1908:—

Name of Steamer.	Number of Sailings.	Cubic Feet Space.
Allan Line—		
'Pomeranian'	3	26,000
'Hungarian'	2	45,540
'Hibernian'	4	45,540
'Ontarian'	2	19,000
'Sardinian'	4	17,600
Canadian Pacific Line—		
'Montcalm'	5	18,668
'Monmouth'	5	19,443
Dominion Line—		
'Southwark'	3	41,472
'Canada'	6	46,904
'Kensington'	5	42,116
'Turcoman'	5	40,491
'Englishman'	4	18,617
'Manxman'	5	41,585
Thomson Line—		
'Iona'	6	80,178
'Cervona'	5	97,530
'Hurona'	6	79,707
'Devona'	6	97,574
'Latona'	1	50,086
'Cairnrona'	5	76,739

SUMMARY.

	Number of Sailings.	Cubic Feet.
To Liverpool	14	616,420
" London	44	2,925,825
" Bristol	24	675,403
Totals	82	4,217,648

THERMOGRAPHS IN STEAMSHIPS, SEASON OF 1908-9.

During the year, 478 temperature records were secured by placing thermographs (recording thermometers) in cold storage, in cooled air and in ordinary storage with butter, fruit, &c. Of these records 444 were obtained in steamers sailing from Montreal and Quebec, 32 in steamers sailing from Halifax and 2 in steamers sailing from Vancouver.

The thermographs were placed as follows:—

From Montreal and Quebec.	Where Placed in Steamship.		
	Cold Storage.	Cooled Air.	Ordinary Storage.
Placed with.	Times.	Times.	Times.
Butter	64		
Cheese	6	19	136
Fruit	24		43
Meats	21	9	5
Frozen Salmon	6		
Butter and Meats	4		
Cheese and Meats	2	30	41
Apples and Meats	6	1	5
Apples and Cheese		5	17
Total	133	64	247
From Halifax—			
Apples	1		31
From Vancouver—			
Apples	2		
Grand Total	136	64	278

BUTTER TEMPERATURES ON BOARD STEAMSHIPS.

During the season of navigation of 1908 the cargo inspectors at Montreal tested the temperatures of 540 packages of butter as these were being loaded into the steamers, each package being marked so as to enable the inspector at the port of discharge to get the temperature of the same package as soon as it was unloaded from the steamer. The temperatures for each line have been averaged for the season, and the results are shown in the following table:—

Steamship line.	Number of Sailings with Butter.	Number of Packages Tested.	Average Temperature at Montreal.	Average Temperature at Port of Discharge.	Reduction in Temperature.
			°	°	°
Montreal to Bristol—					
C.P.R.	7	88	34·3	21·2	13·1
Dominion	11	138	35·9	25·0	10·9
General Average			35·3	23·5	11·8
Montreal to Glasgow—					
Allan	11	43	37·8	25·7	12·1
Donaldson	9	32	31·4	21·4	10·0
General Average			35·0	23·9	11·1
Montreal to Liverpool—					
Dominion	8	43	37·2	20·2	17·0
Allan	5	43	37·8	29·8	8·0
C.P.R	1				
General Average			37·5	25·0	12·5
Montreal to London—					
Thomson	16	144	39·4	17·7	21·7
Allan	3	9	42·0	25·9	16·1
C.P.R.	1				
General Average			39·6	18·2	21·4

SHIPMENTS of Perishable Products in Cold Storage and Cooled Air from the port of Montreal, season 1908 (U.S.A. products included.)

—	In Cold Storage.	In Cooled Air.
Apples (bbls.) Canadian	6,109	1,338
" (boxes) "	2,077	25
Butter (pkgs.) "	89,875	.....
" " U.S.A.	2,536	.....
Cheese (boxes) Canadian	.....	375,318
Meats " Canadian	3,627	25,812
" " U.S.A.	42,518	4,479
Lard (pkgs.) Canadian	100	.....
" " U.S.A.	7,396	1,800
Tender Fruits (boxes) Canadian	11,935	2,404
" " " U.S.A.	12,569	22,858
Fruits and Vegetables (boxes) Canadian	.....	482
Beef (quarters) U.S.A.	1,619	.....
Pork (bales) Canadian	267	.....

SHIPMENTS of Perishable Products in Cold Storage and Cooled Air from the port of Quebec, season 1908 (U.S.A. products included).

—	In Cold Storage.	In Cooled Air.
Apples (bbls.) Canadian	2,871	.....
" (boxes) "	2,512	.....
Cheese " "	.....	4,385
" " U.S.A.	.....	181
Meats (boxes) Canadian	253	.....
" " U.S.A.	9,487	.....
Lard (Pkgs.) "	1,665	.....
Pears (cases) "	309	.....

COLD STORAGE FOR APPLES.

The apple is probably the most useful and the most highly esteemed fruit known to man. Its wide distribution, the excellent keeping qualities of some of its varieties, and the number of secondary products which can be made from it have promoted the use of the apple over a great part of the civilized world. Growing in the temperate regions of the earth and, therefore, in both the northern and the southern hemispheres, the opposite seasons combine to provide a more or less continuous supply throughout the year.

HOW COLD STORAGE MAY ASSIST THE INDUSTRY.

Cold storage which has done much already, and will do more in future, towards extending the usefulness of the apple as a food for man, is destined to materially assist in developing the growth of the apple industry. A large quantity of apples go to waste every year in Canada. The general application of cold storage will not prevent all the waste which occurs at present, because many of the apples that are not used are defective, through the attacks of insect and fungus pests, to such an extent as to be unfit for preservation in cold storage, but it can be utilized to preserve the crop of *sound* apples over periods of glut in the market and until such time as there may be profitable demand for them. There is this to be said also, that under ordinary conditions a large proportion of the apples are over-ripe and more or less damaged when offered to the public. If these apples were in better condition, as they would be

if properly stored, the increased value and lessened risk would encourage heavier purchase and greater consumption.

The steadiness in the markets which would result from the judicious employment of cold storage, and the greater measure of stability which the trade would assume, would all tend to an increased dependence on the apple as a regular food supply.

MATURITY AND RIPENESS OF APPLES.

The life history of the apple is one of growth and maturity up to a certain point, after which the process of decay and disintegration sets in. A distinction should be made between maturity and ripeness. An apple may be considered 'mature' when it is full grown and properly coloured. It may be said to be 'ripe' when it has reached the stage of its best condition for eating. The period of time which may elapse between full maturity and full ripeness varies exceedingly according to variety. The length of this period may be influenced to a very considerable degree by the temperature at which the apple is held. Early fall or summer apples naturally ripen very quickly after maturity. In some varieties, under normal weather conditions for the season of the year, the stage of ripeness follows that of maturity in a few days. In other varieties, maturing later in the season, the period between maturity and ripeness is materially lengthened, until we find the later winter varieties ripening two or three months after maturity, under the ordinary temperature conditions which prevail at that time of the year. The warmer the weather is at the time the apple matures, and the more it is exposed to the high temperature, the shorter the time between maturity and ripeness, other things being equal. During the seasons when hot weather extends into late September or October, winter apples are ripened so quickly that they do not have their usual keeping quality.

DIFFERENCE IN STORAGE FOR EARLY AND LATE APPLES.

The cold storage of apples may be considered under two heads: first, there is the chilling of early fruit for short periods, to prevent it from becoming over-ripe long enough to stand transportation. In those parts of Canada where apples mature during hot weather it is impossible to handle the early fruit in a satisfactory manner without some means of chilling it as soon as it is taken from the tree. Cold storage is also valuable for the handling of winter apples when they mature during warm weather. If placed at once in cold storage and held there until the cold weather comes on, they will be kept in much better condition for consumption during the late winter months than if the ripening process is allowed to proceed rapidly after the apples are taken from the trees.

SOME CONDITIONS WHICH INFLUENCE THE KEEPING QUALITY OF APPLES IN COLD STORAGE.

It has been shown clearly, by careful experiment, that well matured, *i.e.*, full grown and well coloured apples, keep better in cold storage than they do if picked in green condition, for the obvious reason that the skin of the apple is its natural protection against decay, and, therefore, it reaches its highest efficiency at the full maturity of the apple. Apples which are liable to 'scald' are much less subject to this defect if they are well matured and well coloured. It follows, therefore, and it has been proved by experiment, that apples grown on bushy, unpruned trees with heavy foliage, which shuts off the sun and prevents a free circulation of air, will not keep as well as apples from a well-cared for orchard.

It should be noted also that apples which are overgrown and immature as the result of prolonged and late growth of the tree, following errors of cultivation or an unusual amount of moisture in the soil during the early fall, will not keep as well as fruit from trees the growth of which has been checked earlier in the season. It has been found that the product of very young, rapidly growing orchards will not,

as a rule, keep as well as the fruit from well matured trees which are properly cared for and judiciously cultivated.

IMPORTANCE OF CARE IN HANDLING.

It is highly important that apples which are intended for cold storage should be handled with the greatest care, to avoid bruises or skin punctures. The slightest puncture of the skin permits the entrance of the spores of mould which cause the rots in the apple. A bruise weakens the skin and thus permits the early entrance of the moulds at that point. It is absolutely useless to expect imperfect specimens to be preserved in cold storage, because the moulds which cause rots continue to grow at storage temperatures. While the skin is sound these moulds cannot penetrate, but when the life processes have proceeded far enough to cause a breaking down of the skin itself, they gradually begin to find entrance and hence the life of the apple is ended. All schemes of cold storage for apples, should be planned to involve as little handling as possible.

PROMPT STORAGE IMPORTANT.

Too much stress cannot be laid upon the advantage of getting the apples into store immediately after picking, if a maximum preservation is expected. A few days of high temperature, even a few hours in the case of early varieties, are sufficient to hasten the life processes to such an extent as to limit the opportunities for successful marketing.

COLD STORAGE OF APPLES MAY BE OVERDONE.

The cold storage of apples might easily be over done. The earliest varieties should be rushed to the market as quickly as possible to avoid the competition of later and possibly more popular varieties. It would be quite practicable, for instance, to preserve the Duchess or Red Astrachan, if placed in storage at the proper time, for several weeks or even months; but it would not be good business to do so, because the trade would be shy of such varieties out of season. Prompt chilling is all that cold storage should be expected to do for apples of this class. Without this chilling it is easy to flood the market on account of the unsatisfactory condition of the fruit. Even with varieties for which the season might be extended for several weeks, some caution is necessary, because if an apple like the Gravenstein, for example, was carried much past the time when experience has taught every one that it has reached its best and may be expected to 'go down,' dealers would hesitate before handling it. By degrees, however, the season for superior varieties, such varieties as would compete with other and later varieties, might be considerably extended. The Rhode Island Greening is a good type of this class. The season for the Greening has been extended for six weeks or two months in the United States by means of cold storage, with the decided advantage that it misses the competition of cheaper varieties. The Greening is always in favour as a culinary apple. The question of variety should be carefully considered in selecting a stock for cold storing.

It is a mistake to suppose that all Canadian apples require cold storage. In the cooler regions late or slow maturing varieties may be preserved fairly well if properly handled in ordinary frost proof warehouses. While cold storage would lengthen the season of all apples, the gain in value would not be equal to the expense in all cases.

PACKAGES IN COLD STORAGE.

The question of package is of some importance in the cold storage of apples. In the case of the early varieties, for which quick cooling is important, the box package on account of its smaller size and, therefore, greater extent of surface as compared with bulk, undoubtedly facilitates the attainment of the object in view. With later

varieties for which quick handling is not so important, the barrel carries no serious objection.

The question as to whether the package should be ventilated or not depends on circumstances. The ventilation facilitates rapid cooling, but if the packages are likely to be exposed to a warm, moist atmosphere when removal from storage, any openings in the packages only increases the tendency to 'sweat,' as the condensation of moisture on the cold surface of the apples is usually described. On the whole, the advantages seem to be in favour of the ordinary package.

WRAPPERS AND COLD STORAGE.

All apples will keep better if wrapped in paper. The wrapper helps to prevent the bruises which may result from the handling and the presure of tight packing, and it also prevents the spread of mould spores or other germs of decay from one apple to another. The wrapper offers the further advantage that it prevents, to some extent, the collection of moisture on the surface of the apple when it is changed from a low temperature to a comparatively high one.

The wrapper is obviously more useful on early and tender varieties than on later and firmer ones. Circumstances and labour resources must guide the individual in determining how far it will pay to carry the matter of wrapping.

COLD STORAGE TEMPERATURE FOR APPLES.

The most effective temperature for the preservation of apples is that which comes nearest to their freezing point without actually touching it. Different varieties freeze at slightly varying temperatures according to their composition, but 32 degrees Fahrenheit is as low as it is safe to go. It should be kept as near that point as possible. A degree or two will make a marked difference in the keeping of the apples.

SUBSIDIES FOR COLD STORAGE WAREHOUSES.

Contracts for the payment of subsidies under 'The Cold Storage Act' have been entered into during the year with the following:—

Cold Storage, Limited, Woodstock, N.B.
Scott and Hogg, Peterborough, Ont.
The Halifax Cold Storage Co., Port Hawkesbury, N.S.
The Trenton & Atlantic Storages, Trenton, Ont.

The last named has not yet been completed. Several applications for the subsidy are under consideration at the time of present writing. It is doubtful if any of these warehouses or those mentioned in last year's report, would have been erected without the inducement offered by the provisions of 'The Cold Storage Act.' The business of cold storage has been stimulated and promoted by the prominence given to the subject by the passing of the Act in the first place, and by the discussion of the subject which has accompanied the various proposals for the erection of warehouses. Even in cases where efforts to establish cold storage warehouses have been unsuccessful, the attempt has been of more or less educational value.

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